American Druggist
AN ILLUSTRATED TRADE JOURNAL.
VOL. XX. NO. 16. NEW YORK, AUGUST 15TH, 1891. WHOLE NO. 214.

Licorice.

THE order of plants Leguminosæ contains very many of our best known and most useful ones, and in it the wild weed that gives the licorice of commerce. It belongs to the genus Glycyrrhiza, though many other plants of near genera have roots that possess similar qualities. Especially is this the case with the *Abrus precatorius* Lin., that grows abundantly in the West Indies, notably in Jamaica, and in the islands of the Indian Ocean. It ranks over old hedges and fences with a strong, twisted, rugged stem; bears an insignificant little flower, that gives a rough pod enclosing the little scarlet seeds tipped with black so well known. When not fully ripe they are pierced and strung together to form necklaces, bracelets, rosaries, etc., frequently mixed with the larger silvery seeds of "Job's tears" (*Coix lachryma*). I have seen many of the colored nuns, or *Sœurs de Charité*, counting their beads while patiently watching the couch of sick and dying sailors. The long rosaries were made of the red and white berries, and the prayers marked off with sandalwood beads. The roots of the Abrus are used by all Creoles for chewing and other purposes in various bronchial ailments. They have the taste of licorice, but do not yield the rich juice of the Glycyrrhiza.

There are three species of plants, both wild and cultivated, that yield the licorice that is imported by many tons every year into the United States. They are the *G. glabra*, *G. glandulifera*, and *G. echinata*, the latter being considered the best for cultivation. These plants grow wild in all the countries of Europe bordering on the Mediterranean, and their habitat extends through Asia Minor to Central Asia and China. England cultivates it in Surrey and Yorkshire, and the *G. lepidata* is said to be a native of the plains of Missouri and other similar localities in the Southwestern States.

The uses of licorice are varied and numerous. The manufacturers of chewing tobacco consume a great quantity. It serves as a demulcent for coughs and colds, and is an ingredient in many syrups and elixirs, besides having a remarkable effect in masking nauseous medicines. Porter and even ale breweries avail themselves of its saccharin, and the roots are extensively employed by them.

It is imported in different forms: in the roots, also in rolls or sticks of the dried inspissated juice that come packed in sweet-bay leaves. The licorice imported into England from Calabria, Sicily, goes by the name of Solazzi or Corigliano juice; that grown in Yorkshire is made into a confection called Pontefract cakes. The roots of the licorice contain a large amount of sweet, mucilaginous juice, that owes its sweetness to a peculiar principle called *glycion*, or *glycyrrhizin*, which is present in both roots and leaves. The sugar is said to be not crystallizable, and not susceptible of vinous fermentation.

The cultivation of this plant would have been arduous in former years when there was only hand labor and money scarce. There is now plenty of the latter article lying idle; agriculture has also made very rapid strides, and the introduction of the wonderful labor-saving machines now in use for ploughing, etc., would render the successful growth of the plant almost a certainty. It could then be put on the market pure, for even licorice has not escaped in this age of adulteration, as starch, rice, and wheat flower, and even wood ashes, have been used for this purpose. I have carefully collected every available information on the subject, and its growth and cultivation in Europe. I give it for the benefit of those willing and able to introduce fresh objects of commerce to utilize lands good for no other purpose, and to give profitable employment in the gathering season to numbers of willing but often idle hands.

I will first speak of the licorice as native of Southern Europe. The qualities in different countries vary greatly. It is said that the juice from Turkey and Greece is bitter, of Sicily and Spain sweet and rich, but that of Italy the richest, though less is exported thence. I am not aware of licorice being cultivated in any of these countries, as it is so vigorous and abundant a wild plant, almost too much so in many places. In Spain it grows finest in the rich bottom lands of the great rivers, and the crop depends much on the mildness or severity of the winters. It is of such vigorous growth that other weeds cannot encroach on it and crowd it out, and no parasite or insect pest is known to infest it. It is so tenacious of life that if only a small portion of the root is left in the ground after the collecting season, it shoots up again. There are two kinds of licorice, one sending down a tap root from three to six feet deep, and the other runs underground from six inches to two or three feet. The latter is the most highly prized, from the facility with which it is dug up. Only the roots are used, the tops being burned for fuel. It varies in quantity and quality, according to soil, in different provinces, changes its color to red, yellow, or brown, and the proportions of saccharine matter and starch vary also. The climate best suited to the growth of licorice is that where oranges and all the citrus family thrive, as it cannot endure severe ground frosts nor cold, high altitudes.

In Sicily it grows most luxuriantly in low lands adjacent to streams of water. The valley of the river Simeto is so rich that, with the rudest tools and culture, the peasants have no difficulty in growing cereals and other plants for food. Their principal trouble is keeping down the weeds that spring up so abundantly in the cultivated lands, and the licorice, from its pertinacity, is most dreaded. A farmer, when asked if it grew on his farm, replied: "God forbid! for, of all wild vegetation, it is the most difficult to subdue." A crop can be gathered every three or four years from the same ground, and the digging commences after the autumn rains have set in. Licorice requires the hot sun to perfect its juice, but at the same time it bakes the ground so hard, the task of collecting the deep-set roots would be too laborious and expensive till the earth is well saturated. There are seven manufactories in Catania alone, and they produce from 700,000 to 800,000 pounds annually, and others in various cities of the island. Very little of the root is exported either from Sicily or Italy, only the rolls or sticks made from the inspissated juice. Asia Minor exports largely to the United States, mostly in sailing vessels under the Austrian and Italian flags. A great deal of the trade in this country is in American hands. So long ago as 1885 steam presses were in use there, and from Alexandreth, in Smyrna, 6,000 tons were exported, of a value of about $192,000.

Licorice has been cultivated in England since about the fourteenth century. It is said to have been imported from Germany (a fact I doubt from its climate), and was cultivated in the gardens of the old monasteries. The monks, I presume, introduced this plant, as they did so many other useful ones, as it entered very largely into their medicaments. They were in a measure the guardians of the poor in their vicinity in those days, and dis-

pensed medicines for the cure of their bodily ailments, equally with their care for their souls. Licorice has been so successfully cultivated in England that I give the methods employed, as they would, I should think, serve well for our own country.

Mitcham, in Surrey, has been famous for its "herb farms" for over a century, and the air is redolent in summer and autumn with the delicious perfumes of lavender, thyme, rosemary, chamomile, peppermint, and other plants used in medicines or for distillation. The soil is a deep black mould, with some admixture of sand, and considerable licorice has been grown here. The plant is graceful, with feathery pinnate foliage, grows about two to three feet high, and bears small whitish yellow flowers. Since licorice has been imported into England duty free, the crop has been less attended to, as other plants pay better.

Near Pontefract, Yorkshire, it has been long successfully cultivated. The soil is a sandy loam, and has to be of considerable depth to allow the roots to develop well. The beds are prepared by being well trenched, the width of trench and bed averaging three feet, and having the appearance, when finished, of wide celery beds. Commencing early in April or late in March, a top dressing of stable manure is applied and lightly covered over, leaving the trench about six inches below the raised bed. Holes are made with a small spud a few inches apart, and another person follows (often a girl) with a basket of buds or suckers, slips or runners, and they are inserted about four inches below the surface and covered to that depth. This forms a double crop, that is, the buds grow downward, producing the roots, and the suckers form buds for future planting, the width of the beds permitting of cross-rows of plants. The buds and suckers are left in the ground for three and a half years, a crop being obtained in the September following the fourth spring. The first manuring is sufficient, the plants being weeded each summer. A hot, dry season is best for them; they need no irrigation even in the hottest weather, and are free from all insect pests.

The trenches are of course idle for two years, as the plant tops do not show much in that time, so potatoes are planted in them the first year. A species called ash potatoes is used, as they have such small tops they do not overshadow the young licorice plants as larger kinds would.

The second year a crop of cabbages is grown, but the third year the trenches must lie fallow, as the licorice then shows luxuriant growth, and presents in the summer the appearance of a shrubbery of young ash trees. The grower plants a fresh crop in the spring of each year, and in autumn harvests the one of three and one half years' growth.

The only labor required is that the beds be kept clear of weeds in summer, and in November, when the sap is down, the plant tops must be cut off. If the winter proves unusually severe, the tops can be covered with a light layer of earth.

TO GATHER AND PREPARE THE ROOT.

The trench, not the bed, must be dug down to a considerable depth, thus exposing without injuring the roots, and the whole plant is very carefully taken out of the ground. The earth from the second trench is then thrown into the first, and so on to the end of the field. The roots are then placed in dry cellars after removing the tops and suckers, and often covered with sand. The latter serve for the next spring's crop to produce "buds," that is, roots in their early stage, for another year. When the stored roots are dry, they form the yellow licorice for producing the juice of commerce. A small portion of the top of the root is cut off as being of less value than the rest, and is ground into powder and sold to chemists for various uses. The tops are only good for burning.

The 3½ years' sucker, which is gathered with the licorice plant, has now produced "buds," which are reserved with the new suckers for planting. They are either stored in a cellar and covered with rotten dung, or they are made into a mound outside, and well buried in earth or moist sand, and thus withstand the cold, wet winters of Yorkshire.

There appears to be considerable difficulty in finding out some of the first processes of the manufacture of licorice. Mr. Hilliard, who has the largest factory in Pontefract, courteously shows the place to visitors, with the above reservation.

In Sicily, when the roots are dug up, they are bound in bundles and stored in the factories for some time, to season them. When sufficiently cured, men and women cut them into short pieces, and then they are plunged into a vat of water and thoroughly washed. They are then crushed in a rude mill, which consists of two circular stones of lava, the one horizontal, the other perpendicular over it. Through the centre of the upper stone is an axle, to which is attached a mule, which revolves it slowly in a circle. When sufficiently crushed, they are boiled in water for twenty-four hours, then removed from the kettles and placed in a screw press, and the juice squeezed out into a cistern beneath. It is passed through a sieve and again boiled, and the sediment again pressed, and the whole again filtered. When boiled to a certain consistence, it is placed in pans over a fire, and men stir it until dense enough for paste. It is placed in wooden moulds for cakes, or made into rolls or sticks, which, when dried, are packed in bay leaves for exportation. When the roots are required, women scrape off the bark, cut it in the desired length, and when dry it is packed in bags, great care being taken they do not mould nor freeze, and they must be free from the least blemish.

In England now the greater part of the juice manufactured is from roots grown in Spain and Sicily, as the English ones are of smaller size. As the passage is so rapid now over the ocean, a package of roots, buds, or suckers could be brought as fresh and easily, perhaps more so, than from one of our Western States, and doubtless, from the greater heat here, they would improve in size. It would not be difficult to procure fresh wild roots and buds direct from Spain. There is direct intercourse with Seville, whence licorice is shipped to England by steamers or by sailing vessels direct to America. An ordinary Wardian case could be sent to Seville, and would bring back roots and buds enough to start a licorice farm.

Allowing for the difference of climate in England and the United States, anywhere south of Washington, D. C., ought to produce licorice of fine quality with careful culture. There are plenty of low-lying lands, good for nothing else, that could be permanently profitable for it, where ground frosts are light. I say ground frosts, because there is no leafage in winter to be injured. The average latitude where licorice flourishes near the Mediterranean is from 36° to 41° N. latitude, in Mitcham, Surrey, 51° 30′, and in Pontefract 53° 42′.—*Scient. Amer.*

Naphthol-Antipyrin.

SEVERAL combinations of antipyrin with compounds of the phenol class have been described recently, and M. Patein has reported the preparation of such combinations with α-β-naphthol, the former of which is a liquid and the latter crystalline. M. Patein now states (*Journ. de Pharm. et de Chim.*, June 15th, p. 585) that the β-naphthol compound can be made by dissolving 150 Gm. of naphthol in 90% alcohol, and adding to it gradually 190 Gm. of antipyrin dissolved in the smallest possible quantity of water, stirring constantly with a glass rod. After a few minutes a viscous mass is formed, and then upon stirring more vigorously, so as to effect a thorough division, at the end of five or ten minutes the liquid clears, and the β-naphthol-antipyrin is deposited in very small but pure crystals that can be collected on a filter. The yield is said to be theoretical, and the whole operation requires not more than a quarter of an hour. If the small crystals be dissolved in hot 60% alcohol, and the solution be allowed to cool slowly in a flask, fine colorless crystals can be obtained that melt at 82°–83° C., and are soluble in alcohol and in ether, but are decomposed by cold water into naphthol, which separates, and antipyrin, which remains dissolved. In order to prevent this decomposition a mixture of 25 parts by weight of 90% alcohol with 40 parts of water should be used. A nitrogen determination was considered to show that the product is a combination of antipyrin and naphthol, molecule for molecule, without elimination of water.—*Pharm. Journ.*

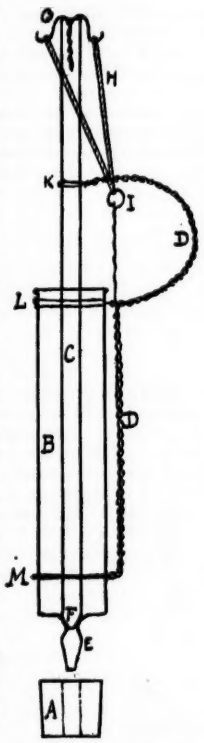
[Original Communication.]

NITROMETER ATTACHMENT FOR BURETTE.

BY EUGENE A. SAYRE, PH.G., OF GLENDALE, O.

For some time I have been using a nitrometer attachment for a burette which I have found so convenient and satisfactory for pharmaceutical use as to render the possession of a more expensive instrument unnecessary. The principal advantage of this attachment over others is the absence of the flexible joint. It therefore requires no extra support apart from the burette, and it also permits the burette to be shaken or inverted without inconvenience.

The materials used in its construction are a narrow glass syringe (⅛ oz. size is about right), a rubber cork, about 10 inches of small glass tubing, and a few feet of stiff tinned or coppered iron wire.



The accompanying illustration will help to make the description clear.

A is a perforated rubber cork which fits the mouth of the burette. B is a Phenix syringe body, the nozzle of which (E) is to be pushed into the hole of the stopper. [In the apparatus sent us by the author, the stopper is much longer and more tapering than that shown in the cut, hence the nozzle of the syringe reaches only partly through the hole in the cork; the balance of the perforation is lined by a small piece of glass tubing, the object being to render the internal calibre unalterable. This is important, since any alteration in two or more successive operations would render the results unreliable.] C is a narrow but stout glass tube, the lower end of which (F) is fused conically, and ground, by the intervention of fine emery and oil of turpentine, into the neck of the syringe nozzle. This glass tube is tightly held in place by a rubber band, H, engaging a twisted-wire arm, G, inserted into the mouth of the tube. D, D is a twisted wire, firmly clasping the syringe barrel at L and M, but having at K a loop through which the tube C may be easily raised. D is so firm and rigid that the tube C is steadily held in the same position.

The twisted-wire attachment, D, is made as follows: Loop the middle of the wire around the syringe, and twist the wires together until a stem about 3¼ inches long is formed, bend the loop at right angles to the stem, and slip over the lower part of the syringe. Now loop the wires around the syringe and back to the starting point, and continue the stem for about 2½ inches; then loop it around the small tube and cut off neatly. The next thing to do will be to determine the capacity of the ungraduated part of the burette. This is done as follows: Fill the burette brimful with distilled water, open the valve in the nitrometer, and force the cork firmly into the top of the burette. Now close the valve, empty the cup (or syringe) again, open the valve, and allow the water to run from the burette into a tared beaker until it is even with the 0 mark on the burette. The weight of water in grammes equals the capacity in cubic centimeters.

For ordinary use the cup (B) may be graduated by weighing or measuring distilled water into it, but greater accuracy may be obtained by the use of a pipette. A very convenient pipette may be made in the following manner: Select a piece of medium heavy glass tubing of about $\frac{3}{16}$ inch internal diameter, draw it out to a point, cut off, leaving a small orifice, round the edges by fusion, and curve the drawn-out end. The larger orifice is also somewhat contracted by heating. To graduate this pipette, seal the point with a very small quantity of wax, attach the tube to the scale pan in an upright position, counterbalance and weigh into it 3 Gm. of distilled water; remove the wax, and allow all of the water to flow into a tared beaker, and blow through the pipette to expel water held in the narrow point by capillary attraction. About 2.968 Gm. will be obtained, leaving 32 Mgm., the amount of water retained in the tube each time it is used. Now draw the capillary orifice full of water, seal, and introduce enough water to make it contain altogether 3.032 Gm. of it, then graduate it by scratching a ring around the tube. If another figure than 32 Mgm. is found, this must be substituted for it.

If the work is carefully done, these pipettes are quite accurate. I have made five measurements with the one I have constructed for my own use, checking each one by weighing. The average error was $\frac{1}{2\,0\,0}$ C.c., the smallest $\frac{1}{1\,0\,0\,0}$, and the largest $\frac{1}{2\,0\,0}$ C.c.

Preparations of Gluside, or Saccharin.

Three-fourths of those medical corporations or other official medical bodies of England, Scotland, and Ireland that sent in to the Medical Council suggestions as to additions to the British Pharmacopœia included saccharin, and that substance—now termed "gluside"—appears in the recently published Addendum. Under these circumstances, a list of typical formulas in which gluside takes the place of sugar will be of value.

The dose or quantity of gluside as a sweetening agent is $\frac{1}{3\,0\,0}$ of sugar. The "lump" of sugar of the familiar sugar basin weighs from 150 to 300 grains. The equivalent quantity of gluside clearly will be ½ to 1 grain. One of the largest of ordinary lumps of sugar is not more sweet than a quarter of a grain of gluside; one of the smallest of ordinary lumps would communicate no more sweetness than an eighth of a grain of gluside. The dose of gluside as a medicinal agent must necessarily vary considerably; 5, 10, 15, 20 grains may be administered; 50 and even 80 grains have been given daily without any injurious effect on the system generally.

One grain of gluside will fully sweeten a 6-ounce bottleful of medicine, or 1½ grains an 8-ounce bottleful, giving sweetness equal to that produced by ½ ounce or 1 ounce of ordinary syrup. The gluside is readily dissolved in these proportions—indeed, 2 grains of gluside may be dissolved, by careful management, in a single ounce of water. Where sweeter fluids are desired soluble gluside, which is extremely readily soluble in water, should be employed. Gluside is soluble in solution of bicarbonate of sodium, with evolution of carbonic acid gas. The latter solution, when warmed and made neutral and evaporated to dryness, yields "soluble gluside" or "soluble saccharin," which is very soluble in water, 100 parts of gluside yielding nearly 113 of neutral "soluble gluside." A stock fluid of the same degree of sweetness as ordinary medicinal syrup, and which may therefore be prescribed in similar quantities, is prepared as follows:

Solutio Glusidi Simplex.—Soluble gluside, 30 grains; distilled water, 1 pint. Dissolve. Each fluidounce contains 1½ grains of soluble gluside. Each fluidrachm represents ⅛ grain of ordinary gluside. If still stronger stock solutions, and somewhat alcoholic, are desired, the following formulas may be adopted:

Liquor Glusidi A. P. A.—(From the National Formulary of the American Pharmaceutical Association.) Gluside, 512 grains; bicarbonate of sodium, 240 grains; alcohol, 4 fluidounces; water sufficient to produce 16 fluidounces. Dissolve. Each fluidrachm represents 4 grains of gluside.

Elixir Glusidi, B.P.C.—(From the Unofficial Formulary of the British Pharmaceutical Conference.) Gluside, 480 grains; bicarbonate of sodium, 240 grains; rectified spirit, 2½ fluidounces; distilled water, a sufficiency. Rub the gluside and bicarbonate of sodium in a mortar, with ½ pint distilled water gradually added. When dissolved add the spirit, filter, and wash the filter with sufficient distilled water to produce 1 pint of elixir. Each fluidrachm represents 3 grains of gluside.

CONFECTIONS.

Passing now from the modes of including either gluside or soluble gluside in ordinary fluid medicines to the

modes of substituting gluside for the sugar hitherto used in the sweetened drugs prescribed by physicians and medical practitioners already mentioned, the following formulas may be followed. Such preparations could be supplied by any chemist and druggist, or be prepared in any properly appointed drug laboratory. They are given in alphabetical order.

Confectio Opii Glusidata Concentrata.—Compound powder of opium, 1 ounce; distilled water, 1 ounce; gluside, 4 grains. Mix. Dose, 2½ to 10 grains. This confection is half the bulk but twice the strength of the official confection. The dose is, consequently, half that of the official confection. One part of opium in 20 parts.

[In our judgment it is unwise to introduce new opium preparations intended as substitutes for some of those now in use, unless the strength in opium and the dose are as nearly as possible preserved the same.—ED. AM. DRUGG.]

Confectio Piperis Glusidata Concentrata.—Black pepper in fine powder, 2 ounces; caraway fruit in fine powder, 3 ounces; tragacanth in fine powder, ¼ ounce; gluside, 22 grains; distilled water, 4½ fluidounces. Rub them well together in a mortar. Dose, 30 to 60 grains. Absence of sugar (honey) renders the above useful when sugar is contra-indicated. It is only half as bulky as the official confection, but it is of double the strength, hence the dose is half that of the official preparation. One part of pepper in 5 parts.

Confectio Scammonii Glusidata.—Resin of scammony, in powder, 6 ounces; ginger, in fine powder, 3 ounces; oil of caraway, ½ fluidounce; oil of cloves, ½ fluidounce; gluside, 8 grains; tragacanth, in powder, ¾ ounce; distilled water, 10½ fluidounces. Mix. Dose, 10 to 30 grains. This confection is of the same strength as that of the confection of scammony of the British Pharmacopœia, hence the dose is the same. It should be recently prepared. One part of scammony resin in about 3 parts.

Confectio Sennæ Glucidata Concentrata.—Senna, in fine powder, 7 ounces; coriander fruit, in fine powder, 3 ounces; figs, 12 ounces; tamarind, 9 ounces; cassia pulp, 9 ounces; prunes, 6 ounces; extract of licorice, 1 ounce; gluside, 44 grains; distilled water, a sufficiency to make 37½ ounces. Boil the figs and prunes gently with some distilled water in a covered vessel for four hours, then mix the tamarind and cassia pulp, digest for two hours, and rub the softened pulp of the fruits through a hair sieve, rejecting the seeds and other hard parts. To the pulped product add the extract of licorice, and dissolve with the aid of heat; while the mixture is still warm add to it gradually the already mixed senna and coriander powders and gluside, and mix the whole thoroughly, making the weight of the resulting confection 37½ ounces, either by evaporation or by the addition of more distilled water. Being twice as strong as the old confection, only half of the old dose need be swallowed. Dose, 30 to 60 grains.

Confectio Sulphuris Glusidata.—Sublimed sulphur, 4 ounces; acid tartrate of potassium, in powder, 1 ounce; tincture of orange peel, ½ fluidounce; gluside, 3½ grains; tragacanth, in powder, 50 grains; distilled water, 3½ fluidounces. Mix. This confection would be employed where the sugar of the official confection is contra-indicated. The strength, and therefore the dose, are similar to those of the official confection. Dose, 60 to 120 grains.

Confectio Terebinthinæ Glusidata.—Oil of turpentine, 1 fluidounce; licorice root, in powder, 1½ ounces; gluside, 3 grains; tragacanth, in powder, 15 grains. Mix. This confection is nearly double the strength of the official confection—1 of turpentine in 2½, as against 1 in 4. Hence the diminished dose—40 to 80 grains. It should be freshly prepared, for the turpentine is liable to evaporate.

ELIXIRS AND EMULSIONS.

Elixir Cascaræ Sagradæ Glusidatum.—Tincture of fresh orange peel, 2 fluidounces; rectified spirit, 1 fluidounce; cinnamon water, 3 fluidounces; elixir of gluside (B. P. C.), 6 fluidounces; liquid extract of cascara sagrada, 8 fluidounces. Mix. Dose, 15 minims to 2 fluidrachms. This is the B. P. C. formula, with elixir of saccharin B. P. C. (*vide ante*) in place of syrup.

Emulsio Olei Morrhuæ Glusidata (B. P. C.).—Cod-liver oil, 8 fluidounces; the yolks of two eggs; tragacanth, in powder, 16 grains; elixir of gluside, 1 fluidrachm; simple tincture of benzoin, 1 fluidrachm; spirit of chloroform, 4 fluidrachms; essential oil of bitter almonds, 8 minims; distilled water, sufficient to produce 16 fluidounces. Measure 5 fluidounces of the distilled water. Place the tragacanth in powder in a dry mortar, and triturate with a little of the cod-liver oil; then add the yolks of eggs and stir briskly, adding water as the mixture thickens. When of a suitable consistence, add the remainder of the oil and water alternately, with constant stirring, avoiding frothing. Transfer to a pint bottle; add the elixir of gluside, tincture of benzoin, spirit of chloroform, and oil of almonds, previously mixed; shake well and add distilled water, if necessary, to make the product measure 16 fluidounces. Dose, 2 to 8 fluidrachms.

Emulsio Olei Ricini Glusidata.—Castor oil, 1 fluidounce; gum acacia, in powder, 180 grains; essential oil of bitter almonds, 2 minims; oil of cloves, 1 minim; gluside, 1 grain; distilled water, sufficient to make 4 fluidounces. Rub the gluside with the gum and the essential oils in a mortar. Add ½ ounce of the water at once. Add the castor oil by degrees, stirring, and the remainder of the water in the same manner. Dose, ½ to 2 fluidounces. This is Gerrard's formula. In both the above emulsions the taste of the oil is disguised.

GARGLES.

Obviously any gargle may have gluside added at discretion. For example:

Gargarisma Aluminis Glusidatum.—Aluminis, 20 grains; sol. glusid. simp., 4 drachms; aq. destill., ad ℥ij. Mix.

MIXTURES.

Mistura Amygdalæ Glusidata.—Compound powder of almonds, glusid. (see below), 1 part; distilled water, 10½ fluid parts. Rub the powder, with a little of the water, into a thin paste, then add the remainder of the water, and strain through muslin. Dose, 1 to 2 fluidounces. This corresponds in strength with the official Mistura amygdalæ, but contains no sugar. It should not be kept more than a few days.

Mistura Cretæ Glusidata.—Prepared chalk, ¼ ounce; gum acacia, in powder, ¼ ounce; simple solution of gluside, ½ fluidounce; cinnamon water, 7½ fluidounces. Triturate the chalk and gum acacia with the cinnamon water, then add the simple solution of gluside and mix. Dose, 1 to 2 fluidounces. This corresponds in strength with the official Mistura cretæ, but contains no sugar.

Mistura Spiritus Vini Gallici Saccharinata.—French brandy, 4 fluidounces; cinnamon water, 4 fluidounces; the yolks of two eggs; simple solution of gluside, ½ fluidounce. Rub the yolks in a mortar, then add the cinnamon water, spirit, and simple solution of gluside. Dose, 1 to 2 fluidounces. This is the official "mixture," with simple solution of gluside in place of sugar.

Gluside will not usefully take the place of sugar in the official Mistura ferri composita, or Mistura guaiaci, for it is not to be expected that gluside will prevent oxidation. If the sugar in these official mixtures is objectionable in certain cases, other preparations of iron or of guaiacum must be prescribed. In "mixtures" the "sol. glusid. simp." takes the place of a similar volume of the official syrupus, but for every fluidounce of simple solution of gluside 1½ grains of soluble gluside may be prescribed, or even the same amount of gluside itself; for, as already stated, 1½ grains of gluside will fully sweeten an 8-ounce bottleful of medicine.

POWDERS.

Pulvis Amygdalæ Compositus Glusidatus.—Sweet almonds, 8 ounces; gum acacia in powder, 1 ounce; gluside, 6 grains. Steep the almonds in water until their skins can easily be removed, and, when blanched, dry them thoroughly with a soft cloth, and rub them in a mortar to a smooth consistence. Mix the gum and the gluside, and, adding them to the almond pulp generally, rub the whole to a coarse powder. Keep it in a lightly covered jar. This preparation is about one-third stronger

than the official Pulvis amygdalæ compositus. It is used in making Mistura amygd. co. glusid.

Pulvis Cretæ Aromaticus Glusidatus Concentratus. (Synonym: *Conf. Aromat. Glusid. Concent.*).—Cinnamon bark, in powder, 3 ounces; nutmeg, in powder, 3 ounces; saffron, in powder, 4 ounces; cloves, in powder, 1½ ounces; cardamom seeds, in powder, 1 ounce; gluside, 36½ grains; prepared chalk, 11 ounces. Mix them thoroughly, pass the powder through a fine sieve, and finally rub it lightly in a mortar. Keep it in a stoppered bottle. If a product of bright color be desired, the saffron may previously be moistened and triturated with a little water or spirit, or the fresh and faintly damp mixture may be subjected to considerable pressure in the triturating process. The preparation is practically double the strength of the official Pulvis cretæ aromaticus; the dose, consequently, is one-half. Dose, 5 to 30 grains.

Pulvis Cretæ Aromaticus cum Opio Glusidatus Concentratus (Synonym: *Conf. Aromat. c. Opio Glusid. Concent.*).—Concentrated glusidated aromatic powder of chalk, 4⅘ ounces; opium, in powder, ½ ounce. Mix. This preparation, through the displacement of sugar by gluside, is double the strength of the official Pulvis cretæ aromaticus cum opio; the dose consequently is one-half. Dose, 5 to 20 grains.

Pulvis Glycyrrhizæ Compositus Glusidatus Concentratus.—Senna, in fine powder, 2 ounces; licorice root, in fine powder, 2 ounces; fennel fruit, in fine powder, 1 ounce; sublimed sulphur, 1 ounce; gluside, 9 grains. Mix them thoroughly, pass the powder through a fine sieve, and finally rub it lightly in a mortar. Dose, 15 to 30 grains. This preparation is double the strength of the official Pulvis glycyrrhizæ compositus.

Pulveres Santonini.—Santonin, 240 grains; gluside, 2 grains; scammony, in powder, 180 grains; bicarbonate of sodium, 60 grains; sugar of milk, 240 grains. Rub together the santonin, gluside, and sugar of milk in a mortar, add the other ingredients, mix and sift. Dose: None to be given to children under six months old; from six months to two years, 2 grains; from two to five years, 1 grain for each year; five to eight years, 6 grains; eight to twelve years, 7½ grains; at bedtime.

SYRUP SUBSTITUTES.

Glusyrupus Aurantii.—Tincture of orange peel, 1 fluidounce; simple solution of gluside, 7 fluidounces. Mix. This preparation is equivalent in sweetness to the official Syrupus aurantii, the sugar in the latter being displaced by gluside. Dose, 1 fluidrachm.

Glusyrupus Chloral—Hydrate of chloral, 80 grains; distilled water, 1½ fluidrachms; simple solution of gluside, a sufficiency. Dissolve the hydrate of chloral in the water, and add the simple solution of gluside until the mixed product measures 1 fluidounce. This preparation has the same strength (10 grains of chloral in 1 fluiddrachm) as the official Syrupus chloral, and the dose is the same. Dose, ½ to 2 fluidrachms.

Glusyrupus Tolutanus.—Take of balsam of tolu 1¼ ounces; soluble gluside, 52 grains; distilled water, a sufficiency. Boil the balsam in one pint of the water for half an hour in a lightly covered vessel, stirring occasionally. Then remove from the fire, and filter the solution when cold. Dissolve the soluble gluside in a pint and a half of the water, and mix the two solutions. If necessary add distilled water so that the product shall measure 48 fluidounces. Dose, 1 fluidrachm (same strength as the official Syrupus tolutanus).

Glusyrupus Zingiberis.—Strong tincture of ginger, 6 fluidrachms; simple solution of gluside, sufficient to produce 20 fluidounces. Mix with agitation. Dose, 1 fluiddrachm. This preparation is of the same strength as the official Syrupus zingiberis.

EFFERVESCING PREPARATIONS.

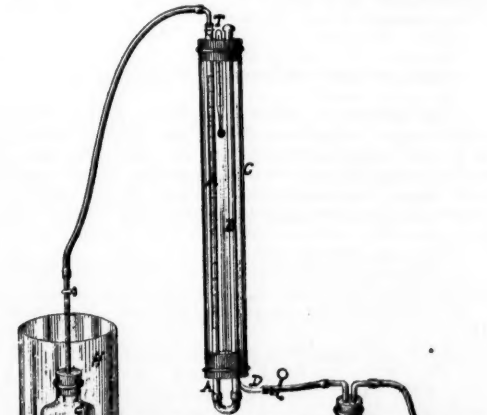
Sodii Citro-Tartras Effervescens Glusidatus.—Bicarbonate of sodium, in powder, 17 ounces; tartaric acid, in powder, 9 ounces; citric acid, in powder, 6 ounces; gluside, 8 grains. Mix the powders thoroughly, place them in a dish or pan of suitable form heated to between 200° and 220° F. (93.3° and 104.4° C.), and when the particles of the powder begin to aggregate, stir them assiduously until they assume a granular form; then, by means of suitable sieves, separate the granules of uniform and most convenient size, and preserve the preparation in well-closed bottles. Dose, 50 to 90 grains, or one to two small teaspoonfuls. The presence of only 8 grains of gluside in the place of 5 ounces of sugar (in the above quantity) results in this preparation being one-sixth stronger than the official Sodii citro-tartras effervescens, usually regarded as the official substitute for the popular, but wrongly-termed, granular "citrate of magnesia," consequently the dose is slightly less.—*British Medical Journal.*

CYLINDER WITH OVERFLOW.

For the purpose of taking the specific gravities of liquids by means of hydrometers or areometers, Frühling and Schulz recommend to use cylinders with overflow (see cut). The utility of these is self-evident, since every one who has worked with hydrometers has experienced the disagreeable consequences of the spilling (by overflow) of acids, caustic alkalies, and other particular liquids.—After *Zeitsch. f. angew. Chem.*

NEW GASOMETRIC APPARATUS.

A. Baumann contends that the usual mode of employing nitrometers or other gas-measuring contrivances is liable to considerable error, chiefly on account of the variability of the volume, due to unequal temperatures of the air currents surrounding the vessels in which the gas is contained. He objects, among other things, to Lunge's apparatus, and particularly to Lunge's gas volume-meter, and lastly describes an apparatus constructed upon what he believes correct principles. This apparatus is here illustrated. The gas-measuring tube proper is a graduated burette, A—the end of which is incorrectly drawn in the cut—and the burette is connected, by a piece of tubing, with an open tube, B. Both of these tubes, together with a thermometer, are enclosed in a larger



tube, C, in the manner shown, the tube being filled with water. The generating flask G is likewise placed in water. The tube C is supported by a clamp not shown in the cut.

When an analysis is to be made, both the vessel H and the tube C are filled with water of the same temperature. The tube C is connected at the bottom with a reservoir, R, containing distilled water—if this is used as measuring liquid. By means of the bulb and stopcock the quan-

tity of water in the tube B required to be exactly on a level with the liquid contained in A is easily regulated.

If the burette A is to be used as such alone, it is only necessary to disconnect it above and below. It need not be taken out of the fittings in the tube C at all. The author advises to keep two or three such apparatuses ready for use. This will enable the operator to undertake a new analysis while the gases evolved in the preceding one acquire the normal temperature.—*Zeitsch. f. angew. Chem.*

Physicians' Testimonials.

THE New York *Evening Post* of June 23d says, editorially:

The *Pester Lloyd*, one of the most prominent journals of Hungary, devotes a good deal of space in its issue of June 4th to the subject of the adulteration of Hungarian wines in America, and naturally singles out Mr. Lorenz Reich as easily first among his fellow-adulterators. The writer, who is in a position to know all the facts in the case, explains to the Hungarian public why it is that Reich continues to ply his trade, although it has been proved again and again that "in eight years he has not received through the Custom-house a single bottle of Hungarian wine." The tale he tells is one that ought to bring the blush of shame to the cheeks of the eminent physicians who so glibly testified to the purity and excellence of Reich's stuff, for their gullibility reflects discredit not only on their profession, but serves to bring well-merited foreign censure on what is notoriously one of the weakest points in the national character. If it is incumbent upon any class of men to rise superior to the American habit of certifying to the excellence of persons or things of unknown or dubious character, it is upon physicians. Surely they ought to exercise the prudence which prompts any ordinarily careful man to view with suspicion the motives of an unknown donor of a gift in return for which a public "testimonial" is expected. It must be borne in mind, moreover, that Tokay is not a wine which is drunk like Rhine wine or claret, or even champagne. It is no exaggeration to say that thousands of poor people buy a bottle of Tokay as a last resource in the illness of a relative, upon the advice of a physician; and to be instrumental in placing before the sick and dying the miserable decoction which goes by the name of Tokay is to incur a responsibility from which any man with a conscience may well shrink.

Tasi, a South American Galactagogue.

A SOUTH AMERICAN asclepiadaceous plant, *Morrenia brachystephana* Grisebach (first described by this botanist in his "Plantæ Lorenzianæ," No. 575), has long been reputed among the natives of Argentina as an excellent galactagogue. Attention has recently been drawn to it in Europe by a paper submitted to the German Chemical Society (*Berichte*, 1891, p. 1849), by Dr. Pedro Arata and Carl Gelzer, on the chemistry of the plant. Dr. Arata, who is a member of the National Board of Health of the Argentine Republic, has made systematic experiments with the *sap* of the plant during the past eighteen months.

He reports the case of a woman whose milk gave out seventy days after the birth of a boy. An infusion of the milk sap of the plant was administered to her, when, after a very short time, an abundance of milk was secreted, so that the child could be fed without the aid of a nurse. The average daily dose administered was 30 Gm. (about 1 ounce). The infusion prepared from the sap is yellowish and slimy, and has a sweetish taste with a bitterish after-taste. It is not disagreeable to take, but when first administered causes a slight nausea and a little headache, also an increased perspiration, but no other untoward symptoms.

The plant is known to the natives of Argentina under the name of *tásis*. [Hieronymus, in "Plantæ diaphoricæ Floræ Argentinæ," 8vo, Buenos Ayres, 1882, p. 177, has *tasi*.—ED. AM. DRUGG.]

The plant grows all over Argentina, and is now chiefly cultivated on account of the fine silky hairs contained in the fruits, which heretofore were used as tinder by the Indians and gauchos, but are now turned into "vegetable silk." The rhizome and fruit of this plant contain an abundance of a milky juice, which is used by the natives as a domestic remedy in various diseases, but has an especial reputation as a milk-maker. The authors of the paper above quoted state that elaborate reports on this property of the plant are contained in the "Boletin oficial de la Exposicion national de Corboda en 1871," p. 63 sqq.

There is another species of tasi found in Argentina, which is *Morrenia odorata* Lindley. According to Hieronymus (*l. c.*), it is also called *doca*. The fruit capsules of this exude an aromatic resin, whence its name.

Luminous Paints.

For orange luminous paint, 46 parts varnish are mixed with 17.5 parts prepared barium sulphate, 1 part prepared India yellow, 1.5 parts prepared madder lake, and 38 parts luminous calcium sulphide.

For yellow luminous paint, 48 parts varnish are mixed with 10 parts prepared barium sulphate, 8 parts barium chromate, and 34 parts luminous calcium sulphide.

For green luminous paint, 48 parts varnish are mixed with 10 parts prepared barium sulphate, 8 parts chromium oxide green, and 34 parts luminous calcium sulphide.

A blue luminous paint is prepared from 42 parts varnish, 10.2 parts prepared barium sulphate, 6.4 parts ultramarine blue, 5.4 parts cobalt blue, and 46 parts luminous calcium sulphide.

A violet luminous paint is made from 42 parts varnish, 10.2 parts prepared barium sulphate, 2.8 parts ultramarine violet, 9 parts cobaltous arsenate, and 36 parts luminous calcium sulphide.

For gray luminous paint, 45 parts of the varnish are mixed with 6 parts prepared barium sulphate, 6 parts prepared calcium carbonate, 0.5 parts ultramarine blue, 6.5 parts gray zinc sulphide.

A yellowish-brown luminous paint is obtained from 48 parts varnish, 10 parts precipitated barium sulphate, 8 parts auripigment, and 34 parts luminous calcium sulphide.

Luminous colors for artists' use are prepared by using pure East India poppy oil, in the same quantity, instead of the varnish, and taking particular pains to grind the materials as fine as possible.

For luminous oil-color paints, equal quantities of pure linseed are used in place of the varnish. The linseed oil must be cold pressed, and thickened by heat.

All the above luminous paints can be used in the manufacture of colored papers, etc., if the varnish is altogether omitted, and the dry mixtures are ground to a paste with water.

The luminous paints can also be used as *wax colors for painting on glass* and similar objects, by adding, instead of the varnish, 10 per cent more of Japanese wax, and one-fourth the quantity of the latter of olive oil. The wax colors prepared in this way may also be used for painting upon porcelain, and are then carefully burned without access of air. Paintings of this kind can also be treated with water-glass.—*Ztschr. Oest. Ap. Ver.*

Highly Active Pepsin.

J. L. WEBBER is the patentee of a new process of preparing pepsin of a high degree of purity and extraordinary digestive power. This process is described in the *Pharm. Centralhalle* of June 4th.

Animal stomachs are macerated in acidulated water, the solution is clarified by the intervention of sulphurous acid, the clear liquid separated from the sediment and saturated with sodium sulphate, which causes the pepsin to separate, while the accompanying peptones remain in solution. The separated pepsin is dissolved in water acidulated with hydrochloric acid, and the sodium sulphate adhering to it removed by dialysis, whereupon the remaining liquid is evaporated to dryness.

The resulting product is readily soluble, and is stated to be free from any disagreeable odor, non-hygroscopic, and to keep well. One grain of it is said to dissolve 10,000 grains of albumen, when tested by the process given in the National Formulary.

Antinervin.

ABOUT two years since, under the descriptive name "antinervin," a preparation was introduced into medicine which was understood to be salicylbromanilide, or bromacetanilide, in which the acetyl radical had been replaced by a salicyl group. Subsequently it was described as a combination of salicylanilide with bromacetanilide. This has led to an examination of the preparation by Dr. Reuter, with a view to determine its exact nature (*Pharm. Zeit.*, June 24th, 303). From the results obtained in several analyses of old and new samples, Dr. Reuter has arrived at the conclusion that antinervin is neither salicylbromanilide nor a combination of bromacetanilide with salicylanilide, but a mixture having the average composition of 25 parts each of ammonium bromide and salicylic acid and 50 parts of acetanilide.—*Pharm. Journ.*

Practical Notes on Metallic Sodium (also Potassium and Lithium).

THE following notes are abstracted from a paper presented by Max Rosenfeld to the German Chemical Society (*Berichte*, 1891, p. 1658).

1. *Preserving Sodium so that it will retain its metallic lustre.*—Metallic sodium which is kept under petroleum becomes covered with a crust and loses its metallic lustre. Such sodium may be cleaned and preserved bright, and fresh bright sodium may also be preserved, in the following manner:

Transfer the metal into a mixture of 1 part of amylic alcohol and 3 parts of petroleum; rub it with a rag soaked in the same liquid until it has acquired a silver-white color; then place it for a short time in petroleum containing 5 per cent of amylic alcohol; afterwards wash it with pure petroleum, and finally preserve it in petroleum containing 0.5 to 1 per cent of amylic alcohol. This treatment renders the sodium bright and shining, and causes it to show at the surface, after a while, a crystalline tracing. When kept for some time in this manner, it becomes covered with a yellowish, transparent coating of sodium-amylate, which may, however, easily be rubbed off by filtering paper.

Potassium and lithium may be preserved in the same manner.

2. *Sodium Amalgam.*—On bringing purified and bright sodium in contact with metallic mercury, they combine with appearance of fire. The operation is best conducted as follows:

Select a crucible, and provide it with cover having a hole in it, into which a stopper is inserted carrying a pointed wire which reaches to the bottom of the crucible. Place the requisite quantity of mercury in the latter, fasten the entire piece of sodium required to the point of the wire, and immerse the sodium into a mixture of 1 part of amylic alcohol and 9 parts of petroleum. As soon as the metal has assumed a silver-white color, immerse it, either at once or after rapid wiping with filtering paper, into the mercury. Since the crucible is covered by the lid at the same time as the sodium comes in contact with the mercury, only a small quantity of mercurial vapor is expelled from underneath the lid.

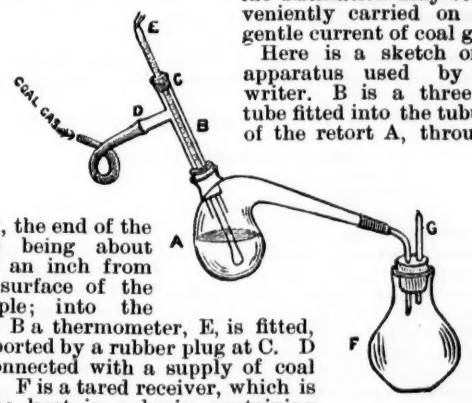
3. *Liquid Alloy of Sodium and Potassium* (melting point at 6° C.).—This is best obtained by placing a piece of clean, bright sodium in petroleum mixed with 10 per cent of its weight of amylic alcohol, and rubbing a piece of bright potassium against it (the sodium). The liquid alloy then forms of its own accord and collects in drops at the bottom.

4. *Preparation of Sodium Sulphide.*—When metallic sodium and sulphur are triturated together, they combine with explosion, burning pieces of both elements being scattered about. The combination may be brought about more quietly by triturating 1 Gm. of metallic sodium and 3 Gm. of common salt to a very fine powder, and then mixing this with 0.7 Gm. of flowers of sulphur intimately, but without the least pressure. At the moment when the substances are intimately mixed, the sodium and sulphur combine, under fire, the products being the yellow polysulphuret and the flesh-colored sodium monosulphuret.

DETERMINATION OF OIL OF TURPENTINE IN PAINTS, ETC.

WHILE much information has been published with regard to the composition and fabrication of various paints and varnishes, there appears to have been very little done in the way of detailing methods of their analysis. The cause of this may be put down to the complicated nature of these substances, together with the many little difficulties that attend the proximate estimation of their constituents. In a recent analysis of a sample of an enamel, the writer found the distillation method here described to answer well for the determination of turpentine, leaving the residuum of linseed oil, gum, and pigment in a fit state for further examination.

When paints or varnishes are distilled in air, it is known that oxidation products are formed giving a low result for turpentine, while the residue of linseed oil, etc., is rendered useless for further examination, owing to the formation of the inert linoxyn, etc. In ordinary cases the distillation may be conveniently carried on in a gentle current of coal gas.



Here is a sketch of the apparatus used by the writer. B is a three-way tube fitted into the tubulure of the retort A, through a cork, the end of the tube being about half an inch from the surface of the sample; into the part B a thermometer, E, is fitted, supported by a rubber plug at C. D is connected with a supply of coal gas. F is a tared receiver, which is to be kept in a basin containing cold water. G is a small tube for allowing the gas to escape. About 150 Gm. of the sample are weighed into the retort, and connected to the tared receiver as in the sketch. The retort is now suspended in a glass air bath (a beaker with its bottom cut out is convenient) over wire gauze on a tripod stand. Before proceeding with the distillation, a gentle current of coal gas is made to pass through the apparatus, and, when all the air has been driven out, the issuing gas is lighted at G, and the gas turned down until the flame is about the size of a pea. A rush of gas must be avoided, or there would be a loss of oil of turpentine. A small flame is now placed under the retort, and the distillation proceeded with gently. The turpentine should drop into the receiver without affecting the gas issuing at G. The temperature necessary for the complete expulsion of the oil may be about 220° C. When all the turpentine has come over, detach F and plug the end of the retort with a cork, leaving the gas still turned on until it be required to examine the residuum, which is thus kept free from oxidation.—H. J. PHILLIPS in *Chem. News.*

Remedy for Warts.

SPEAKING of secret remedies, there is a specialist of warts in Berlin who in removing warts is eminently successful. His secret remedy consists in Fowler's solution, which he gives, in weekly increasing doses, to adults 2 drops three times a day; to children, ½ drop three times a day.

Rossbach's Expectorant Mixture.

Apomorphinæ Hydrochloratis	1 gr.
Morphinæ Hydrochloratis	½ "
Acidi Hydrochlorici Dil.	10 gtt.
Aquæ Destillatæ	5 fl. oz.

Dose, a tablespoonful every two, three, or four hours.
[The diluted hydrochloric acid is evidently superfluous.]

Rapid Estimation of Nitrates in Water.

IN place of the present somewhat cumbersome methods in vogue for detecting the presence of, and estimating (approximately) the quantity of, nitrates in drinking water, George Harrow (in *Jour. Chem. Soc.*) proposes a new method, which is based upon Griess' color test for nitrous acid, the nitrate being for this purpose previously reduced by zinc dust. The author says:

The method which I have devised for this purpose is founded on Griess' extremely sensitive nitrite test (alpha-naphthylamine and sulphanilic acid), and depends on the conversion of nitric acid into nitrous acid by means of zinc dust; that this conversion is a partial one, and that other products—ammonia and hydroxylamine—are formed, does not affect the delicacy of the test or the accuracy of the determination.

The test solution used consists of

Alpha-Naphthylamine	1 Gm.
Sulphanilic Acid	1 Gm.
Ordinary strong Hydrochloric Acid	25 C.c.

dissolved in about 200 C.c. of distilled water, boiled with a small quantity of animal charcoal, filtered, and made up to 500 C.c.

There are also required standard solutions containing

1.0 part N as nitrates per 100,000
0.1 " " " " " "
0.01 " " " " " "

To prepare these solutions, 0.721 Gm. of pure and dry potassium nitrate is dissolved in 1 liter of water; the resulting solution contains 10 parts of N per 100,000, and may be readily diluted to the strength required. If many water analyses are to be made, it is as well to make up a quart of each of the standards.

A small quantity of zinc dust is also required, contained in a wide-mouthed bottle, into the cork of which a miniature spatula, constructed of brass or platinum foil, should be fixed.

The process is conducted as follows: Fifty C.c. of each water to be tested—and as many as four estimations may readily be conducted at the same time—are placed in beakers (100 C.c. contents) side by side on a sheet of white paper, and with them, in three similar beakers, 50 C.c. of each of the standard nitrate solutions; to each beaker are now added 10 C.c. of the test solution, and afterwards a very small quantity of zinc dust (7 to 8 Mgm.) by means of the miniature spatula; the quantity added should be approximately the same in each case, and I find that there is no difficulty in effecting this. If nitrates be present in the waters a more or less intense pink color will make its appearance, and this color may be compared with that produced in the three standard nitrate solutions, after the lapse of fifteen minutes; a rough approximation to the truth is obtained in this first experiment.*

To get an accurate result the water must be diluted until the color produced is very nearly like that given by one of the standards; perhaps the greatest accuracy may be obtained with the most dilute standard, and, if it be used, a hundredfold dilution of the water to be tested is frequently advisable; the necessary dilution is, of course, indicated by the first experiment.

The diluted waters are again tested against standards 0.1 or 0.01, and, after fifteen minutes, the colors carefully compared in Nesslerizing cylinders of equal calibre, which may be conveniently graduated at the side. The standard solution occupying 60 C.c. in one cylinder, the water tested is run into the other until the depth of color appears to be equal; a reading is then made of the quantity necessary. Say 45 C.c. were employed: then 45 : 60 :: 0.1 : x (= 0.133); and supposing the water to have been ten times diluted, it would contain 1.33 parts nitrogen as nitrates and nitrites.

The advantages of the process are its rapidity, simplicity, and ease of execution, and the small quantity of water required for analysis. Twenty C.c. are sufficient for the purpose, and enable one to make several determinations.

The only precaution necessary, so far as I have observed, is to avoid the addition of large quantities of zinc dust, which would decolorize the solution.

* If *nitrites* are present the pink color will, of course, appear without the addition of zinc dust: Griess' test.

The Russian Platinum Mines.

ALL the platinum of Russia comes from one district, the government of Perm. In 1885 the output amounted to 110,635 ounces, and in 1886 to 184,336 ounces. Hitherto it has only been found in alluvial deposits and is always associated with gold. The proportion of the two materials varies greatly, the platinum sometimes being in greater quantity than the gold, in other places not constituting above 1 per cent. The former deposits are the more profitable to work. The most important of these distinctly platiniferous deposits occur in the district of Nijni-Taguil, near the watershed of the Urals.

All the platinum-bearing streams of this locality decend from Mount Solovskaia, which is composed of a serpentine rock. The rivers have greatly exceeded their present size in former times, or else, which is more probable, have shifted their course; for the wide valleys in which they flow contain alluvial deposits of considerable extent, which are exploited for platinum, and to a less extent for gold. Between Mount Solovskaia and the diorite mass of Mount Blanche the surface is covered with rounded bowlders of serpentine and peridotite rock. As these bowlders decompose under the action of the air, they form a sand or gravel from which the metal can be profitably extracted. This is similar to what takes place in the weathering of the diamond-bearing peridotite rock of Kimberley, which is exposed to the disintegrating action of the atmosphere before being washed for diamonds. The platinum of the alluvial deposits occurs in grains, or pound of 10 Kgm. weight. The gravel often contains $\frac{1}{2}$ ounce per ton of platinum, but can be profitably worked for $\frac{1}{10}$ ounce. The deposit near the banks of the river Martiane consists of a serpentine conglomerate, and is from 4 to 5 meters in thickness. Above is a thickness of 23 to 24 meters of barren ground, chiefly clay. Most of the alluvial auriferous deposits in which platinum is found are in the neighborhood of peridotite rock, or of serpentine rock formed by the partial alteration of the peridotite. Thus the river Mioss takes its source from a mountainous district mainly composed of serpentine rock, and accordingly the auriferous deposits near the head of the river are rich in platinum, but further down stream, as the serpentine formation is left behind, the gold becomes less platiniferous. Small nuggets of platinum are sometimes found embedded in pieces of serpentine, of peridote, and of chrome iron ore, all constituent minerals of the peridotite rock, which there is good reason, therefore, to regard as the true mother rock of the platinum. The richest deposit of the Nijni-Taguil district is that of Avrarinski, extending for a length of 2 Km., 20 to 60 meters wide, and of a thickness of 4 to 5 meters. Here the platinum is found to the amount of 4½, 5, and sometimes even 9 ounces per ton. The metal contains a small proportion of gold, about 0 26 Gm. per kilo, which is separated by amalgamation. The crude platinum left contains about 90 per cent of pure platinum. From October, 1886, to August, 1887, the production at Avrarinski was 40,475 ounces. The working of these deposits is to a large extent sublet by the proprietors to the peasants of the district, who are paid by the weight of metal obtained. They construct their own washing and other machinery, which is made of wood and is of a very crude description. The conditions with regard to cost of living, wages, and so forth, are of course very different from those obtaining in new countries, such as South Africa, where the precious metals are exploited.

Sometimes the present beds of the rivers contain sufficient platinum to pay for working, in which case the course of the river is diverted and the water power used for driving the machinery. A large part of the gold-mining of the Urals is likewise carried on under the system of subletting, but where the mother rock—generally quartz or diorite—is worked more expensive plant is required, and the work is carried on by the proprietors of the soil or by companies.

Europhen.

DR. F. GOLDMANN communicates to the *Pharm. Zeitung* a note on this new substitute for iodoform.

The substance is prepared under a German patent obtained by the successors of F. Bayer & Co., in Elberfeld, and is isobutyl-orthocresol-iodide—one atom of iodine being in combination with two molecules of isobutylcresol. It is said to be prepared by the action of zinc chloride on a mixture of isobutyl alcohol and orthocresol when heated, and treating the product with an alkaline watery solution of iodine in potassium iodide, chlorinated lime being added, if necessary, to complete oxidation. The europhen is formed as an amorphous precipitate, and on purification is obtained as an amorphous yellow powder, containing about 28 per cent of combined iodine.

Olive oil dissolves 25 per cent of its weight of europhen. Dr. Goldmann describes the properties of the substance at great length, and states that in bactericidal properties one part of it has been found to be equal to five parts of iodoform. It is regrettable that a happier name than "europhen" was not adopted for the substance—"euphorine" is not unknown.—*Chem. and Drugg.*

Copper in Oil of Lemon.

IT is a well-recognized fact that oil of lemon which has remained for any length of time in the copper vessels in which it is imported, is liable to become contaminated with this metal, owing to imperfect tinning; but, although occasionally attention has been drawn to this impurity, I do not recollect any method proposed for its elimination.

I have much pleasure, therefore, in giving in detail a process which in my hands has proved successful.

The oil operated upon (6 liters) was part of a parcel which had been accidentally overlooked, and must have been some months in the drum in which it was found. On examination it had all the appearance of oil of bergamot, and being tested gave a distinct copper reaction.

To get rid of the metal without injury to the oil was now the object. Keeping this end in view, I proceeded as follows:

A dilute acid was made, consisting of 1 part of sulphuric acid and 2 parts of water. Several experiments were tried with small quantities of oil, in order to ascertain how much of this dilute acid would be necessary, not only to absorb the copper, but to obtain this result in the most expeditious manner, the quantity finally determined being 1 C.c. dilute acid to 28 C.c. of the oil, or about 15 minims per ounce.

In this proportion the bulk was now treated with dilute sulphuric acid, and shaken together until the green color of the oil disappeared, which was in the course of a few minutes. About 1 liter of water was added, again well shaken, and allowed to stand until separation took place, which was in a quarter of an hour. The acid solution was siphoned off, and put on one side for estimation of copper. The oil was now repeatedly washed with water until perfectly free from acidity, the water siphoned off, and the oil digested with dried sodium sulphate for twelve hours, and filtered through double paper filter. The result was unquestionably good, and, to my mind, the oil appears to be somewhat improved by the treatment. The acid solution which now contained the copper was estimated by the color-titration process, and gave 0.00525 per cent.

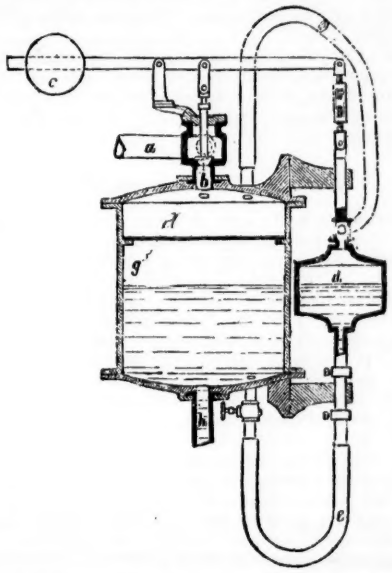
As a comparative experiment (in order to see whether dilute sulphuric acid exerted any influence other than that of separating the copper) a sample of the very best oil of lemon was procured from a source which could leave no doubt as to its purity, and this was subjected to precisely the same treatment, with virtually no effect whatever upon the oil.—W. H. MCGRATH in *Chem. and Drugg.*

To Abort a Furuncle.—The early application of the ointment of the nitrate of mercury is recommended as an effective means of aborting a boil.

AUTOMATIC FEEDING OF EVAPORATING PANS.

THE apparatus here described is applicable not only to closed evaporating pans (vacuum pans), but equally well to open ones. It may be constructed in various ways, but the principles upon which it is constructed are patented by Thomas Gaunt, of Brooklyn, and E. H. Clapp, of Boston.

The liquid which is to be evaporated enters the apparatus *g* through the pipe *a* and the valve *b*. The latter is raised or lowered, and the flow of the liquid thereby cut off or started again in the following manner: The evaporating pan is connected at the bottom, by means of a flexible tube *e*, with a small reservoir *d* suspended at



the end of a lever, the other arm of which is counterbalanced by a weight so adjusted that the reservoir shall sink when it becomes filled to a certain level. When the arm carrying the weight *c* rises, the cross-bar closes the valve *b*, and the flow of liquid stops. As soon as evaporation has diminished the bulk of the liquid in the pan, the arm carrying the reservoir rises again and the valve opens.—After *Chem. Zeit.*

Tribromophenol (or Bromol) as an Antiseptic.

C. RADEMAKER recommends tribromophenol for external use, in form of lotion, ointment, and glycerite.

For Wounds and Ulcers:

Tribromophenol	1 part.
Olive Oil	30 parts.

or,

Tribromophenol	2 parts.
Vaseline	15 parts.

In Diphtheria, as local application:

Tribromophenol	1 part.
Glycerin	25 parts.

Pistoia Powder.—There is a powder made in a convent near Pistoia, Italy, which is used very extensively as a protective against gout. The following is said by Mr. Chastaing to be its composition:

℞ Bryonia Root, Gentian, Chamomile	āā Gm. x.
Colchicum Root	Gm. xx.
Betony	Gm. l.

This is made into 365 powders, one of which is taken each day of the year in a full glass of cold or hot water.

Extraction of Caffeine.

P. SIEDLER (*Berichte d. Pharm. Gesellschaft*, 1891, 178) denies the correctness of a recent statement of Mr. Paul (in *Pharm. Journ.*, vol. 50, p. 882) that chloroform is an unsuitable solvent for caffeine when the latter is to be extracted from tea, etc. He finds, on the contrary, that when alcohol is used as menstruum, and when either lime or magnesia is mixed with the powdered tea to set the alkaloid free, the final product is contaminated with either lime or magnesia, as the case may be. On the other hand, if chloroform is used there are only faint traces of mineral matters extracted along with the alkaloid.

He also finds that it is absolutely necessary to reduce the mixture which is to be extracted to the finest possible powder, and to continue the extraction with chloroform at least eight hours.

Alcohol always yields an impure product; hence, if used to assay tea leaves, etc., it furnishes too high a result. Chloroform with magnesia requires a long time of action, but as the product is nearly chemically pure they are preferable.

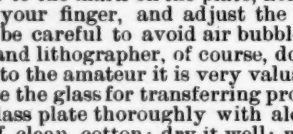
Transferring Prints to Glass.

THE *Lithographer and Printer* gives the following method whereby any chromo print, or even clipping from newspapers, any engraving no matter in how many colors or on what kind of paper, may be transferred to glass by different treatment of the various kinds of paper.

Place the object to be transferred, face downward, upon a larger sheet of Manilla paper; prepare a solution of from 1 to 3 per cent of nitric acid in water, according to thickness and strength of paper and how strong it was sized; ordinary newspapers, and printings and engravings on unsized glazed paper, require even less than 1 per cent nitric acid. One of the purposes of adding nitric acid is to remove the sizing out of the paper. This solution apply with a sponge to the back of your object to be transferred. Be careful not to overdo it; you only want to render the paper soft, but not wet. Continue sponging with this solution until you see the printing plainly—that is, until the paper becomes quite transparent.

Laying down the paper, first adjust the upper right-hand corner to the mark on the plate, hold it there with the tip of your finger, and adjust the left-hand lower corner, but be careful to avoid air bubbles. The practical printer and lithographer, of course, does not need this advice, but to the amateur it is very valuable.

To prepare the glass for transferring proceed as follows: Clean the glass plate thoroughly with alcohol by means of a ball of clean cotton; dry it well; wash it with turpentine; dry it off again; place the glass or plate upon a smooth elastic layer (such as flannel), and with this elastic layer upon a table, or, better yet, upon a rubber blanket in the lithographic hand press. Now coat the cleaned surface with a thin coat of half turpentine and half Dammar varnish; let it dry from ten minutes to one day, according to temperature and thickness of Dammar varnish. The coating should not be allowed to dry entirely; it should be a trifle sticky. Lay the impression face downward upon the glass plate; it is important that neither water nor acid touch the surface during the entire process. To properly lay down the impression, take it up with both hands by holding the left-hand under corner and the right-hand upper corner. Be careful not to get any air bubbles under the sheet. This is best accomplished by marking upon the plate the exact position and size of the sheet, as here shown:



Press the sheet to the adhesive Dammar coat; this may be done in many different manners. It does not require a very strong pressure, but it should be observed that *each and every spot* has to be pressed repeatedly against the plate. We advise the use of a small rubber ruler or a blotter ruler, or any similar instrument. You may also use the hand, but of course not with much safety; or a dabber of cotton or rags, or an ivory paper folder. When the paper sticks quite smoothly to the plate, fan it perfectly dry, and then, with *wet* finger tips, slowly rub off the paper, and the print, of whatever color or nature it may be, will remain on the glass plate. Upon this apply another coat of Dammar varnish containing very little turpentine (with too much turpentine you run the risk of washing the entire picture from the plate again). If all our rules are followed, a splendid picture will be obtained, which can be washed and cleansed with water, the same as a window, as often as desired, and the transfer will not be injured thereby. Such a picture will be visible from outside of the glass, day and night, the same as any glass painting.

The Bromine Compact.

THE bromine compact of 1888, which has hitherto been faithfully observed by the German producers, contains a clause providing that the European bromine makers shall in nowise offer, sell, or ship, and shall use all reasonable precautions to prevent others from offering, selling, or shipping, any bromine or bromine preparations to ports of the United States, the American producers undertaking precisely similar obligations with respect to the export of American bromine into Europe. As regards the rest of the world, the contracting parties refrained from entering into any negotiations, recognizing the impossibility of preventing shippers from buying where they liked; but we believe that the sale of the American bromide outside the United States has been practically confined to some of the South American ports and Japan. By causing their European representatives to solicit offers for bromide, the American producers have practically declared war upon their European competitors, though, as we have explained, they appear to hesitate to receive their fire baptism, in spite of the lighthearted ness with which they provoked hostilities.

We have it on good authority that the Stassfurt works hold at this moment a surplus stock of close upon 1,000,000 pounds of bromide—sufficient to supply the world's requirements, medicinal, photographic, and otherwise, for a year or more. This supply, if driven to such a step, they are prepared to use as ammunition, not only for the purpose of scaring the American eagle from European shores, but even of hunting that fowl in his own domain. The heavy stock which has accumulated in Stassfurt is said to have been originally brought together for the purpose of supplying the anticipated requirements of a new process for the extraction of gold, which some two or three years ago appeared likely to create an enormous new outlet for bromine. Under this process the gold ore was brought into contact with bromine in a revolving cylinder, resulting in the formation of bromide of gold, which by a subsequent process was separated, most of the bromine being recovered. Despite the latter circumstance, it was computed that, had the process been successful—which it was not—it would have absorbed from three to four million pounds of bromine per annum.

In the expectation of having to cope with so heavy a demand for its produce, the Stassfurt works accumulated the heavy stock which they are now prepared, if need be, to spend in fighting the enemy.

That it would be unsafe, under the circumstances, to invest in bromide or its preparations at anything like the quotations now ruling is plain.—From *Editorial* in *Chem. and Drugg.*, July 25th.

Acne.—The following is recommended as a useful application in cases of blackheads and pimples disfiguring the faces of the young of both sexes:

℞ Oxide of zinc, Resorcin, Starch.....	.....āā ʒ i.
Vaseline.....	ʒ ijss.

M. Apply a thin coating to the affected parts, at bedtime, and rub off with oil the following morning.

The Active Principles of Podophyllum.

RUDOLF KUERSTEN (*Archiv d. Pharm.*, 229, 220) has succeeded in obtaining a purer form of podophyllotoxin, which has heretofore been regarded as the chief active principle of podophyllum, than had been accomplished by Podwyssotski and others. Podwyssotski's podophyllotoxin was an amorphous substance. Kuersten has found that the principle may be obtained from this in a pure, crystalline form by dissolving it in chloroform, and precipitating this solution in fractions by means of petroleum-ether. The pure substance then crystallizes in short prisms melting at about 104° C.

The same substance can be extracted directly from the root in the following manner: Extract the fat from powdered podophyllum root by means of petroleum-ether; then exhaust it with chloroform, remove the chloroform from the liquid extract, and treat the residue with boiling benzol. The latter will yield podophyllotoxin in crystals. But they must be purified by washing them with alcohol of 50 per cent, recrystallizing from benzol and from hot alcohol of 45 per cent. The pure substance melts at 93°–95° C., is but little soluble in cold water, ether, or benzol, easily soluble in acetone or alcohol, moderately soluble in acetic acid. The solutions are neutral. On moistening the crystals with concentrated sulphuric acid a cherry-red color is produced, which passes first to greenish-blue, afterwards to violet. Concentrated nitric acid causes a red color. Millon's reagent produces, in an acetic acid solution of the substance, a distinct red tint. Ferric chloride or bromine has no effect upon it. The substance is strongly lævogyre. Its composition corresponds to the formula $C_{22}H_{24}O_8.2H_2O$.

Kuersten also re-examined the picropodophyllin of Podwyssotski, which is less active than podophyllotoxin. He found it to have the same chemical composition as the latter, and may easily be produced from this by heating its alcoholic solution with ammonia. Its melting point, however, is as high as 227° C.

The same chemist obtained and examined several other constituents from podophyllum, which are described in the same paper, but are here omitted.

The Chemical and Clinical Value of Sterilized Milk.

PROFESSOR A. R. LEEDS, who is well known as an authority on the subject of milk analysis, reports (in *Amer. Journ. of Med. Science*, June, 1890) that raising the temperature to the boiling point, and still more the retaining of it at that point for a lengthened period, as in sterilization, converts a considerable portion of the soluble into insoluble proteids. The effect of heat is greatest on the galactozymase—the ferment found in raw milk, which has the power of liquefying starch; even raising milk for a moment to the boiling point destroys this ferment action.

Experiments made to contrast the behavior of sterilized milk with raw milk, when subjected to the action of rennet, acid, artificial gastric juice, and pancreatic juice, show that the casein, while not coagulated by the heat, is nevertheless less readily coagulated by rennet, and yields slowly to the action of pepsin and pancreatin. Moreover, a part of the lactalbumen of the milk is coagulated, although only partially so. Its effect, however, is to thicken the milk and intensify its colloidal (ropy or mucilaginous) character. The fat globules are likewise somewhat affected by the heat, and the coagulated proteid matters attach themselves to the fat globules, and probably have an influence in bringing about the difficulty with which the fat is assimilated.

Finally, milk sugar, Dr. Leeds finds, is completely destroyed by long-continued heating, and is probably affected to a certain extent during the interval ordinarily allowed for sterilization. Dr. Leeds thus shows that sterilized milk is less readily and less perfectly digestible than raw milk; and, if sterile milk is sought for, the present desideratum is to obtain it either directly from the animal or by a process not accompanied by such serious drawbacks.

Dr. E. R. Davis (in the same paper) confirms the opinion, which has gradually gained ground, that, while sterilized milk may be useful as a remedy in various bowel complaints, it is not sufficient to sustain life.

If sterilized milk is desired, Dr. Leeds recommends that, after being rendered feebly alkaline with lime water, the milk should be heated to 155° F. for six minutes; or, still better, the treatment, in alkaline solution, with pancreatin at 155°, followed, if not immediately used, by momentary heating to the boiling point. Either of these procedures, Dr. Leeds maintains, will render milk sterile without detracting from its digestibility.—After *Therap. Gaz.*

New Formulas.

A NEW edition of the Unofficial Formulary of the British Pharmaceutical Conference has just been issued, which contains the following new formulas (weight is avoirdupois; measure is imperial):

COLLODIUM BELLADONNÆ.

Collodion of Belladonna.

Syn.—Emplastrum Belladonnæ Fluidum. [Fluid Belladonna Plaster.]

Alcoholic Extract of Belladonna	5 oz.
Spirit of Camphor	2½ fl. oz.
Dissolve, and add	
Flexible Collodion	sufficient to produce 1 pint.

ELIXIR RHEI.

Elixir of Rhubarb.

Rhubarb Root in 12 powders	5 oz.
Fennel Fruit, bruised	2 "
Glycerin	3 fl. oz.
Refined Sugar	4 oz.
Rectified Spirit, 1 volume Distilled Water, 3 volumes	a sufficient quantity.

Moisten the rhubarb and fennel with 15 fluidounces of the mixed spirits and water, macerate for forty-eight hours, and express. Break up the marc, and add to it sufficient of the same menstruum to furnish, with the previous pressing, 15 fluidounces of clear product. Express again after twenty-four hours' maceration. Unite the liquors, allow to stand for two days, and filter into the sugar and glycerin.

Dissolve without heat; then, if necessary, add sufficient of the above menstruum to make the product measure 1 pint.

Dose, 1 to 3 fluidrachms.

GLYCERINUM BELLADONNÆ.

Glycerin of Belladonna.

Extract of Belladonna	1 oz.
Boiling Distilled Water	1 fl. drm.
Rub together in a warm mortar to produce a smooth paste, and add	
Glycerin	sufficient to produce 2 fl. oz.

UNGUENTUM HYDRARGYRI OLEATI.

Ointment of Oleate of Mercury.

Oleate of Mercury	1 oz.
Simple Ointment	1 oz.

Mix without heat.

VINUM AURANTII DETANNATUM.

Detannated Orange Wine.

Orange Wine	1 gal.
Gelatin, cut small	2 oz.

Macerate for fourteen days, and decant.

[Orange wine is, according to the Brit. Pharm., "wine made in Britain by the fermentation of a saccharine solution to which the fresh (?) peel of the bitter orange has been added.]

VINUM XERICUM DETANNATUM.

Detannated Sherry.

Sherry	1 gal.
Gelatin, cut small	2 oz.

Macerate for fourteen days, and decant.

Note on Sandalwood.

SANDALWOOD has been known in India from the highest antiquity; it is mentioned under the name "chandanna" in the "Nirukta," or writings of Yaska, the most ancient Vedic text known, dating the fifth century B.C. At that time, and for long after, it was specially utilized as a perfume, as well as in burial rites either to embalm the dead or to feed the funeral pile. Even now this wood is used for the same purpose in India, and the honor rendered to the dead is proportioned to the number of logs of sandalwood upon the pile.

The Greeks and Romans seem not to have been acquainted with sandalwood. In any case it is not mentioned in their writings, and the first European writer who speaks of it is Constantinus Africanus, of Salerno, in the eleventh century. In the fifteenth, Ebn Serapi, surnamed Serapion the Younger, mentions three kinds—red, yellow, and white.

Already at this time the three kinds of sandalwood were indicated as being kept by the apothecaries, but it was not until later that the true medicinal properties of the wood were known. In 1750 Dutch travellers visiting the Moluccas brought back and communicated to Rumphius, of Rotterdam, a remedy used by the natives against blennorrhagia, which consisted of a maceration of disintegrated sandalwood. Rumphius studied this product, and it was he who first gave, in his work entitled "Herbarium Amboinense," a detailed description of *Santalum album*.

However, the favor accorded at first to sandalwood was of short duration, and as a medicine it had fallen completely into oblivion, when in 1865, in the United States, Dr. Henderson, in order to avoid the disagreeable repetitions and intestinal disturbances that accompany the administration of copaiba and cubebs, thought of substituting these by oil of sandalwood. The experiments made by him in this direction having been crowned with success, he communicated the results obtained to the *Medical Times and Gazette* of June 3d, 1865.

In the month of July following, mention was made in the Société de Chirurgie of the employment of oil of sandalwood in blennorrhagia. At that time Dr. Panas made some experiments with capsules containing 40 Cgm. each in the Lariboisière hospital, and on the 20th of September of the same year he communicated to the Société de Chirurgie the results obtained, stating that oil of sandalwood is very well tolerated by the most delicate stomachs, and does not occasion any disturbance either of the digestive canal or of the kidneys. Some months later Dr. Simonet confirmed the statements made by Dr. Panas.

Formerly three kinds of sandalwood were recognized: (1) *Red Sandalwood*, from *Pterocarpus Santalinus* (Leguminosæ).—This wood possesses no medicinal properties, and is used exclusively in dyeing, on account of the red coloring matter it contains.

(2) *White and* (3) *Yellow Sandalwood.*—The last two kinds are the produce of several trees of the genus *Santalum* (Santalaceæ). Certain authors have stated that they represent one the sap wood and the other the heart wood; but it has long been recognized that the depth of color of these woods depends solely upon the species that yields them, and the two sorts are in fact confounded under the same name.

This wood is very hard, of a more or less dark-yellow color, and has a very pronounced aromatic odor. The hard trunk wood is alone sent to Europe, the branches and white wood having no value; the roots are utilized in the country where they are grown, in the preparation of essential oil.

Sandalwood came originally from India. The *Santalum album* is still cultivated there in the mountains of Mysore and at Arcot in Madras. The cultivation is protected by the Government, which decides every year the number of trees to be cut down. The seeds of the tree are sown together with capsicum. The latter spring up very quickly, and the young capsicum plants protect the young sandal plants from the fierceness of the sun. They also serve the purpose of providing nourishment, as the young sandal plants, being parasitic, fix themselves upon the roots of the capsicum plants and draw from thence the necessary juices until they have attained a development, when they can nourish themselves directly by the aid of their own roots. When the trees have attained an age of twenty to thirty years they are cut down, and the trunks are freed from white wood and cut into small billets, which are sent to China or Europe. The roots are cut into chips and distilled on the spot by a very primitive process. The two ports of export from India of sandalwood and oil are Bombay and Mangalore.

The actual quantity of sandalwood oil exported from India tends to diminish. It is a strongly colored oil, and always adulterated, probably with castor oil.

Sandalwood is also met with in the Sandwich Islands, where it is yielded by *Santalum Freycinetianum*, and in the Fiji Islands, where the *Santalum Yasi* is found.

In Australia an essential oil is obtained by the distillation of *Fusanus spicatus* and *Fusanus acuminatus*, which is beginning to arrive in the European markets, but which is less odorous, like the wood from which it is obtained.

Lastly, there is received from Venezuela, but in small quantities, an "oil of sandalwood" known as West Indian, and which is indicated in the price currents as "W. I."

The best oil is, without doubt, that which is prepared in Europe, principally in France and England. The billets are reduced to shavings and distilled with water in large apparatus. The oil, being mixed in the wood with a resinous substance, separates with difficulty and distils over only after a time, when it is collected in a series of Florentine receivers, where it separates slowly from accompanying water. It is afterwards clarified by paper filtration. In this way is obtained an oleaginous liquid having a density of about 0.975 (the B. P. indicates 0.960 and the U. S. P. 0.945), lævogyre, neutral to litmus, soluble in alcohol, ether, and chloroform, and nearly insoluble in water. Exposed to the air, oil of sandalwood oxidizes and resinifies; on the other hand, it gives reactions similar to oil of turpentine and other hydrocarbon essential oils.

The consumption of sandalwood oil is an increasing one, and its high price presents naturally a temptation for fraud. It is not rare to find this essential oil in commerce mixed with fixed vegetable or mineral oils of far inferior commercial value. This addition is easily detected, for these fixed oils are usually lighter than essential oil of sandalwood, and diminish consequently the density when mixed. Further, if a drop of suspected oil be placed on a piece of unsized paper, any fixed oil present will not volatilize, but will leave a permanent stain.

A sophistication more difficult to recognize consists in the admixture of essential oil of cedar or copaiba, either made after distillation, or, as is sometimes practised, by distilling the cedar and sandal woods together. In this case it is not easy to detect the fraud, especially upon a brief examination. It can, however, be discovered with the aid of the polarimeter, as the addition of either cedar or copaiba oil to oil of sandalwood diminishes its rotatory power.—M. ADRIAN in *Journ. de Pharm. et de Chim.*, July 15th. After *Pharm. Journ.*

Pseudoconhydrine.

CONJOINTLY with G. Adam (*Berichte*, xxiv., 1671), Professor Ladenburg gives some further particulars concerning the new alkaloid, pseudoconhydrine, discovered by E. Merck in *Conium maculatum*. The base is readily soluble in water, alcohol, ether, and benzin, and the salts are also very soluble. The melting point of pseudoconhydrine is 100°–102° C., but it sublimes at a lower temperature in fine needles, and boils at 229°–231° C. The alkaloid is optically active, and, like conhydrine, must be a secondary base, since it yields a nitrosamine upon warming its hydrochloride with sodium nitrite. The formation of an iodine derivative by treatment with hydriodic acid, in which an iodine atom replaces an hydroxyl group, also determines that, like conhydrine, it belongs to the class of bodies termed alkines. In all probability conhydrine is piperidylethylalkine, $C_5H_9(CHOH.CH_2.CH_3)NH$, whilst pseudoconhydrine is the analogous derivative from isopropylpiperidine.—*Pharm. Journ.*

American Druggist

AN ILLUSTRATED BI-WEEKLY JOURNAL.

VOL. XX., No. 16. WHOLE No. 214.

WILLIAM WOOD & COMPANY,
PUBLISHERS,
56 & 58 LA FAYETTE PLACE,
NEW YORK, N. Y.

SUBSCRIPTION PRICE per year, - - - - - - - $1.50
SINGLE COPIES, - - - - - - - - - .10

Address all communications relating to the AMERICAN DRUGGIST *to* WILLIAM WOOD & Co., *56 and 58 La Fayette Place, New York City, to whose order all postal money orders and checks should be made payable.*

The AMERICAN DRUGGIST *is issued on the 1st and 15th of each month. Changes of advertisements should be received before the 5th and 20th. New advertisements can occasionally be inserted after the 10th and 25th.*

BIBLIOGRAPHY.

PHARMACOGRAPHIA INDICA. A History of the Principal Drugs of Vegetable Origin met with in British India. By WILLIAM DYMOCK, Brigade Surgeon, retired, etc., C. J. H., WARDEN, Surgeon-Major Beng. Army, etc., and DAVID HOOPER, Quinologist, etc. Parts I.–IV. 8vo. Bombay, 1889–'91.

Parts I. to IV. of this important work, the successor of Dr. Dymock's well-known "Vegetable Materia Medica of Western India," comprise the vegetable drugs of the natural families from Ranunculaceæ to Solanaceæ, according to the usual succession, and it will probably require two more parts to bring the work to an end.

In treating the different subjects the authors have followed Prof. Dymock's well-tried plan, giving in most cases, first, references to illustrations of the plant or plants treated of; then, habitat and vernacular names; history, uses, etc.; description, microscopic structure, chemical composition; collection; commerce, etc., etc. Naturally, on so vast a field, it was necessary for the authors to make use very largely of the literature existing on every subject, and this has been done with great judgment, all essential features being treated, while immaterial ones are omitted. References are always quoted in the text. In the chapters on history a great mass of original research is represented; many Oriental works, heretofore unused for these purposes, or known to but few, have been made use of. In connection with poisonous drugs often employed for criminal poisons, valuable statistics are given from the Government records. It is but little known, outside of India, to what an extent poisons are used among the natives for human beings or for cattle. One of the most generally used poisons is datura (usually in form of seed, from *Datura Metel, D. Stramonium*, or other species). Of late years the number of fatal cases have become quite rare, but it is generally accepted that if an individual, in India, has been first drugged and then robbed, datura has been employed. A common method of using it is by means of a hollow pestle, with which the natives pound the spices always employed in Indian cookery. A so-called road robber, having designs upon a travelling merchant or other transient guest, will place datura seeds in the hollow of the pestle, and thus pound the seeds up with the food without exciting suspicion.

We hope that the authors will soon carry their task to a successful end. A work of this kind, to be really useful, requires a most perfect index, and we have no doubt that this will be supplied. We would also suggest that the principal Oriental works quoted in the text be separately enumerated and briefly described, as to author, scope, contents, available editions (if printed), and time of composition, if known.

PHARMACOGNOSIE DES PFLANZENREICHES. Von F. A. FLÜCKIGER. Dritte Auflage. Mit einem geschichtlichen Anhange. 8vo. Pp. xvi., 1,117. Berlin, 1891. [Pharmagnosy of the Vegetable Kingdom. By F. A. Flückiger. With an historical appendix.]

This new edition of Flückiger's standard work represents the progress in our knowledge of the principal drugs during the past eight years. Nearly every page bears testimony of the care with which the revision of the text has been accomplished. In view of the great number of subjects treated it is impossible to go into details here, but some points of note may be mentioned.

We have only noticed *one* article eliminated in this edition; this is Sanguis Draconis, which, indeed, should no longer be quoted among drugs. The principal *new* admissions are the following: Cascara Sagrada ("Cortex Purshianus"), Cinnamomi cortices varii, Cortex Copalchi, Cortex Quillajæ, Folia Coca, Semen Arecæ, Semen Strophanthi. Since the work treats of numerous drugs which are not (or no longer) official in the German Pharmacopœia, and since it was, in fact, not the intention of the author to confine himself within such narrow limits, we may regard the new edition almost as a revised "Pharmacographia," though we think that some particularly well known, and almost international, drugs like Rhizoma Podophylli, Oleum Ricini, etc., ought to be included. We trust that the author may see his way clear to do so in a future edition.

One of the most valuable features of the work are the historical notes given in connection with each drug. For these all the sources are carefully quoted, and only one well acquainted with the resources of large libraries of reference can realize what an immense amount of literature, ancient and modern, often drawn from the most remote or unexpected quarters, has been laid under contribution in this portion of the work.

A COURSE OF HOME STUDY FOR PHARMACISTS. First Lessons in the Study of Pharmacy. By OSCAR OLDBERG, P.D., Professor of Pharmacy and Director of the Pharmaceutical Laboratories in the Department of Pharmacy of Northwestern University, etc. With 150 illustrations. 8vo. Chicago [1891].

There are many thousand members of the profession in this country who never meet with the chance of receiving systematic instruction in the various branches of their profession, either in regular colleges or from individuals. And yet it is well known that there are thousands, particularly of the young and more ambitious members or beginners, who are anxious to acquire such knowledge, but who do not know in what way to begin. Many of them, who have perhaps only a Dispensatory or some Formulary for reference, begin to read and re-read these works, picking up crumbs here and there, but much of the matter is only poorly or partly understood or remembered by them because of their lack of preliminary training. There is, therefore, a real demand for methods of instruction specially designed for those who cannot leave their places of employment. Among the successful solutions of this problem is the work here noticed.

We have carefully examined the contents, and are convinced that any person, of fair education, who will spend the necessary time upon a study of the work, will accomplish the object in view. In many cases it might be advisable to present the various subjects in a different succession. This will, of course, depend on the individual. Beginners would probably be most benefited by first taking up the subject of Pharmacy, in which pharmaceutical operations and apparatus are explained. At the same time, or after cursorily passing over "Pharmacy," Materia Medica might be taken up. This need, at first, not be gone through systematically, but may be taken up as one or another subject comes to the attention of the student. Later on, however, the drugs should be studied in groups. When some progress has been made in both of these departments, the subjects of Physics and Chemistry may be taken hold of, and by judiciously distributing his leisure time over the several departments a good foundation may be laid by the student.

One advice we might give here which we know will be useful. It is this: Whenever possible, let at least *two* young men join together in carrying on such studies. The mutual discussion of the subjects will cause a much more ready assimilation than solitary study would effect.

The language of the text is clear and precise. In one place we found an oddity which we hope will be eliminated in the next edition. On page 308 the author teaches that the liquid in which a precipitate is to be produced is called "*precipitand*," and the liquid or other material causing the precipitate "*precipitant*." True, the former is the "liquor præcipitandus," and the latter the "liquor [or materia] præcipitans." But who could distinguish these two words readily in English conversation? Another thing: We do not believe that anything material is gained by printing chemical formulas in two colors. By choosing sufficiently contrasting type, the constituents of a formula may be just as plainly shown.

We understand that the first edition is nearly exhausted, within a few weeks. The book will evidently have a large circulation, and fully deserves it.

CORRESPONDENCE.

Determination of Sugar in Diabetic Urine by the Muscimetric Method.

Edtior American Druggist.

DEAR SIR:—Prepare a 1-per-cent solution of grape sugar in healthy urine, pour it on a soup plate; on another plate pour an equal volume of the diabetic urine; evaporate both to a syrupy consistence, then expose both plates in a place where there are flies. After ten or fifteen minutes count the flies on each plate, divide the number on the diabetic urine by the number on the grape-sugar solution, which will give the percentage. Yours truly,

KOEHLER, *Physiologist.*

ST. LOUIS, July 25th, 1891.

"Every Man his own Postmaster."

Editor American Druggist.

DEAR SIR:—Enclosed you will find a copy of my "Pocket Post Office," that I designed after suggestions from *American Druggist*. I think it is a grand medium for advertising. I do all my printing, and believe fully in the "make it yourself" maxim, from soda water to chemicals and pharmaceutical galenicals. I find many scientific and mercantile matters in your columns that are of great value to me, and hope to continue to find them. I have a very fine microscopical display in my window that is attracting much attention, prepared by Geo. S. Hazard, M.D., a clerk of mine. And with one of Queen's microscopes, with ½ inch and ⅛ inch objectives, we show customers all sorts of microscopical wonders, together with tubes of pathogenic cultures of bacteria. The display includes quite a complete outfit for microscopic work, slides, mounts, cultures, etc., etc. I believe such novel window displays are among the best of advertising mediums, to say nothing of the interesting features to one's patrons.

Pardon me for time I have taken, but I was so pleased with the "post-office" I thought I must write you about it. Yours, etc.,

CHAS. A. MILLER.

ROXBURY, MASS., Aug. 2d, 1891.

P. S.—Forgot to add that we make a special point of looking for drug adulterations, both by chemical and microscopical methods.

Mouse Poison.

Sulphate of Strychnine	70 parts.
Sugar of Milk	70 "
Prussian Blue	2 "
Arsenious Acid	140 "
Wheat Flour	600 "

Rub the sulphate of strychnine and sugar of milk together, add the Prussian blue and arsenic, finally the flour, and mix thoroughly.—*Nat. Drugg.*

NEWS AND NOTES.

CANADA.

THE election of councillors of the Ontario College of Pharmacy took place on the 2d inst. The following is the result:

Division I., Buchanan 21, Waters 18; II., Polson 23, Hobart 21; III., McKee 35, Ryley 18; IV., Daniels 25, Jaffrey 20; V., Mackenzie 34, Gibbard 26; VI., J. W. Slaven 46, W. B. Sanders 30; VII., Patrie 17, Perry 16; VIII., J. A. Clark 34, Jukes 13; IX., McGregor 20, Snyder 18; X., J. J. Hall elected by acclamation; XI., L. T. Lawrence elected by acclamation; XII., Jordan, 34, Martyn 14; XIII., D'Avignon 25, Everest 7.

From the above it will be seen that the electors of nine of the districts approve of the action of the last council by returning their representatives. It is to be hoped that now that the sentiments of the electors have been proved, the calumet of peace will be handed around amongst the chiefs.

The president of the college has been returned by the handsome majority of 21, or nearly two-thirds of the total vote. Now that he is secure in his seat, let him and his opponents lay aside or burn their very complete dictionaries of expletives, and give us in the trade journals an example or so of that much-advertised but rarely-exposed-to-view higher education of pharmaceutical students. The administration of the affairs of the college cannot take up twelve months in the year, so let us have a change from self-adulation and hostile demonstrations to the other party. It would be well to bear in mind the fable of the two lions squabbling while the wily fox trots off with the cause of the contention.

The semi-annual meeting of the council for granting certificates of competency and for other business, is convened for Tuesday, August 4th, 1891.

The druggists of Montreal have organized for mutual protection against several pernicious practices affecting them in no small degree. Cutting and the vending of patent medicines, etc., by drygoods and grocerymen at reduced prices, are among the subjects for discussion. It is well they have instituted this association, not only for their own protection, but also that of their Ontario brethren. The thin end of the wedge was beginning to make itself felt.

MICHIGAN.

FRAZIER'S drug store on Myrtle street, Detroit, was recently destroyed by fire, the entire stock being ruined, while the building was damaged to the amount of $300. Mr. Frazier's loss is about $1,500.

Michigan seems to offer a fertile field for the propagation of medical and pharmaceutical manufacturing concerns. There has lately been added to the already large list the Michigan Pharmacy Company, of Marshall, and the Wolverine Chemical Company and Diamond Bitters Company, of Detroit.

An item is at present going the rounds of the pharmaceutical press, for the supposed edification of the gullible retailer, to the effect that a certain member of a manufacturing house is now "taking his first vacation in twenty-seven years, etc." This statement is calculated to produce a large-sized cackle of mirth among those druggists who remember when this same gentleman was travelling about the country at the head of a professional baseball team not quite twenty-seven years ago. Such heartrending devotion to the interests of the "dear retailer" cannot be too highly commended.

At the meeting of the State Examining Board at Star Island, the following were given certificates as first-class Pharmacists: Harry W. Andrews, Adrian; Frank W. Blair, Birmingham; W. M. Choate, Jackson; Jas. E. Doyle, Middleville; T. R. Ellis, Port Huron; B. E. Foley, Lakeview; Lizzie Golden, Fenton; W. S. Gregg, Wm. Hyslop, Max Magdelender, Geo. von Nostitz, Michael Van Vliet, Detroit; Henry S. Berger, East Saginaw; Adam Newell, Burnip's Corners; Claude White, Lakeview; Purvis S. Wilson, Dresden, Ont. Assistant Pharmacists: Daniel Bryant, George F. Heinberger, Richard A. Patrick,

Joseph Pryzbylowski, Detroit; Albert J. Beaudette, Windsor; James A. Ardiel, Grand Rapids; Wade B. Camburn, Hanover; Frank Connell, Belding; Charles W. Culbertson, Ridgeway; Fred. W. Pearlove, Mayville; Mark F. Dreymar, Marlette; Myron H. Henry, Greenville; Harney H. Hillier, Hartford; Oscar A. Marfilens, East Saginaw; Marlin A. Millard, Gaines; Nicholas D. Morrish, Sault Ste. Marie; Rolfe S. Patrick, Cassopolis; Oscar Peterson, Muskegon; John Stewart, Marlette; Saxe C. Stimson, Chelsea; Alex. Stuart, Windsor; Walter van Arkle, Muskegon; Thomas B. Welch, Strathroy, Ont.; Rollin C. Winslow, West Branch.

The first annual commencement of the pharmaceutical department of the Michigan College of Medicine and Surgery was held at Clawson's Hall on the 27th instant, and passed off with great éclat The following were presented with diplomas: Walter S. Dupont, Berthold Bertram, Walter M. Boylan, Charles P. Fisher, Frank L. Hays, John F. Bennett, Michael van Vliet, Oscar Kannsen, Ernest C. Lee, Geo. von Nostitz, Charles A. Bryan, Wm. S. Gregg, Albert Lamb, and Kenneth Kincaid.

Rev. Dr. Wallace Radcliffe delivered the address, which, as is usual in such cases, was chiefly notable for the euphonious flow of its flowery eloquence. The burden of his song was that druggists should avoid the sale of soda water on Sunday, and, in fact, everything else on which there might be any profit, and keep their stores open for the blessed privilege of alleviating human (and clerical) suffering free of charge. This advice is quite proper from a clergyman's standpoint, but most druggists will probably continue to run the risk of a rather shadowy Hades for the sake of gathering in the unusual stream of very material filthy lucre which is diverted into their coffers from the sale of soda on Sunday.

The Walkerville laboratory of Parke, Davis & Co has been closed down indefinitely. This action has caused much comment among medical and pharmaceutical Windsorites.

The time is now upon us when the druggist will reap rich harvests from the influx of visitors to the G. A. R. Encampment. In many of the down-town pharmacies the supply of postage stamps has already given out, while the demand for stools, camp chairs, etc., for the accommodation of those who desire to wait for the street car or question the clerk, is simply enormous.

MISSOURI.

THE druggists of St. Louis are probably as shrewd a class of business men as will be found in any other line of trade; however, they are subject to occasional losses through impositions practised by sharpers. In the years gone by the retail druggists have become acquainted with many of the tricks played upon members of the profession elsewhere, and more than one druggist has occasion to remember the lesson through bitter experience. The most recent scheme comes from the ranks of the morphine eaters, who are always endeavoring to beg or steal their narcotic, which, as a rule, they can ill-afford to purchase. The trick which has been played upon many of the St. Louis druggists is not a new one by any means, but it had been so long since any one had practised it in St. Louis that the pharmacists were taken by surprise. The scheme is simply to buy an eighth-ounce sulphate of morphine bottle, and carefully removing the tinfoil and cork, and then as carefully replacing them after emptying the vial. The morphine eater then goes to a store and calls for a bottle of morphine, which is placed in the pocket, when the customer turns around with the empty bottle in hand, exclaiming that it seems as if it were empty. The unsuspecting druggist examines the bottle and surmises that he has been imposed upon by the manufacturer. The whole affair was not understood until the wholesale druggists found many complaints coming in from the retail druggists, and, by following the matter up, determined the sources of the empty morphine vials. The sale of goods to morphomaniacs is never a satisfactory transaction, unless the goods are sold at a fair profit and for cash. The occurrence just related shows that trouble may be made even when the market price is exchanged for the goods. Druggists in other sections of the country should take warning and not be caught as their Missouri brethren have been.

The legal and moral aspects of selling morphine to the unfortunates who habitually use it is a subject which is occasionally agitated in various sections of the country, but seems to have little or no effect on the condition of affairs which has existed for many years. The laws in many of the States prohibit the sale of morphine without a prescription from a regular practising physician, while the majority of the remaining States and Territories have poison laws requiring the registration of all such sales. As a rule the above requirements are entirely ignored when it comes to the sale of opium or morphine to those who habitually use it. The moral question seldom troubles the pharmacist, the argument being that if he does not sell it some one else will. The use of morphine is so carefully and secretly practised that the general public does not realize the extent to which it exists, or know the amount of crime and misery which it causes. This prevents any general crusade against the sale of morphine as we have against intoxicating liquors by the prohibitionists and temperance workers. If the druggists present at some State convention would relate their experiences with customers who use morphine, it would make a striking revelation for the public, and no doubt surprise the members themselves, for each druggist seems to think that his customers are about the only ones in the community who use morphine.

CHAS. C. MAY, 34th and Lucas avenue, as well as LOUIS SCHURK, 32d and Olive streets, were party to an interesting little case for the police courts. Two little girls, one 8 and the other 12 years of age, called at the drug stores named and ordered goods which were said to be for a prominent physician of the city with whom they claimed to live. The goods were delivered to the children, but it was soon discovered that the little thieves were unknown to the doctor or his family. An investigation caused the arrest of the children, who seemed to have taken this course through a love for adventure rather than a necessity for stealing or natural depravity. The druggists of St. Louis will be more careful in the future how they deliver goods on verbal orders.

Druggists of Missouri were not the ones to take the initiative in the recent movement to suppress the cut-rate evil, but the amount of work which they are doing is making up for any loss of time at the beginning. The St. Louis Apothecaries' Association and the Kansas City Retail Druggists' Association have called a meeting to be held in St. Louis Thursday, August 27th. This meeting is intended as a conference of local retail druggists' associations in the territory extending from the Great Lakes to the Gulf, and the Alleghanies to the Rocky Mountains. The societies in the territory named are requested to send one delegate for each one hundred members, or fraction thereof, in their respective societies. President Thomas Layton and Secretary G. H. Chas. Klie, of the St. Louis Apothecaries' Association, have been in active correspondence with the officers of a large number of these associations, and it is expected that delegates from each one will take part in the deliberations of the convention to be held at the St. Louis College of Pharmacy, August 27th. The work to be accomplished by such a convention has not been very definitely outlined; it will be left to the wise judgment of the representative men expected to take part in the convention. All of this shows that the interest in the cut-rate problem is not abating, and the retail druggists in this section of the country are not discouraged because they have been unable to restore full prices as quietly and easily as the most sanguine prophesied. The result of this convention will be awaited with interest by every retail druggist in the country.

The ways of the law are queer and often very tortuous, which explains, partially at least, why decision has not been reached in the case of the Missouri State Board of Pharmacy against the St. Louis retail druggist who it is claimed permitted an unregistered and incompetent drug clerk to compound prescriptions while the proprietor was absent from the store. The case is set for trial August 6th, but will probably be postponed until later in the month. If a decision is rendered in favor of the Board of Pharmacy, there are many other drug stores throughout the

State that will immediately procure registered clerks to compound their prescriptions. If the result of the trial is adverse to the Board of Pharmacy, these druggists will permit their stores to be illegally managed as at present, and await the action of the Board of Pharmacy in prosecuting them or their neighbors. There is one drug store especially in St. Louis which is attracting considerable attention from the law-abiding pharmacists. It is claimed that this store is owned and managed by a doctor who knows nothing about the drug business and little about medicine. He has his store kept open night and day, and leaves it in charge of a negro porter during the night, who is liable to make a mistake whenever he sells anything else than soda water. The doctor will probably hear from the Board of Pharmacy as soon as they are through with the present case on their hands. Another source of argument for the registered pharmacists is found in some of the dispensaries connected with the medical colleges and private hospitals. It is claimed that some of these pharmacies are in charge of people totally ignorant of the drug business. In some cases the dispensing department is managed by the Sisters, who have little idea of the art of pharmacy. This is certainly an opportunity for the Missouri Board of Pharmacy to continue its work of enforcing the law.

Incompetent druggists of Missouri who are driven out of the State by the pharmacy law can no longer go to Arkansas and enter business without being molested. The Arkansas pharmacy law went into effect the 1st of August, and henceforth every person dispensing drugs in that State must register with the State Board of Pharmacy. This shuts off one of the many sources of outlet for those who find it inconvenient to comply with the Missouri pharmacy law. Indiana is now the only State which gives such persons a welcome home. As yet Indiana is without a State pharmacy law, and from past experience it looks as if it would be some time before the State Legislature passes a bill regulating the practice of pharmacy in Indiana.

Grand preparations are being made in St. Louis for the fall festivities, which occur in the latter part of September and former part of October. This will be carried on on a larger scale than ever before, and it is expected that large numbers of retail druggists from Missouri and the surrounding territory will come to the city and place their orders during that time. The Missouri druggists particularly are in the habit of visiting their wholesale house every fall and selecting goods for the holiday and winter trade. This is a practice which seems to be highly satisfactory to the retail druggists and is encouraged by the wholesalers. The jobbing houses call in many of their travelling men during this season and keep them busy waiting upon customers. Judging from the preparations being made by the wholesale dealers, they seem to be expecting an unusually large trade the coming fall.

While St. Louis for the past three or four years has been a notorious city for the cutting of prices on patent medicines, the druggists throughout the State of Missouri have, as a rule, always succeeded in maintaining better prices; even Kansas City druggists have never gone as far as the St. Louis druggists in giving away their profits, so that the druggists in smaller towns cannot be expected to appreciate the present cut-rate movement to the extent that it is enjoyed by the druggists of the Mound City. Although the above is true, it does not prevent a general sentiment among the druggists throughout the State in favor of the movement to prevent cut rates. This is probably due to a great extent to the existence of so large and well organized a State Pharmaceutical Association, which manages to have well-attended meetings and instructs its members in the cause of trade interests.

Missouri is not a prohibition State, but it has a system of local-option laws which govern, or seem to govern, many of the smaller towns of the State. Wherever local-option laws exist the druggists have a great deal of complaint to make. They are not distressed because they cannot sell liquor, but the trouble comes from the fact that the entire liquor trade is thrown into their hands and it is given them in a very undesirable manner. It is difficult for a druggist in a local-option town of Missouri to understand the law from one day to another, because it depends greatly upon the interpretation of the local courts. The druggist never knows whether he is dispensing intoxicating liquors in accordance with the legal requirements, or whether he will be arrested before another day and put to a great deal of inconvenience and expense as well as disgrace. This question probably disturbs the average retail druggist in the smaller towns of the State more than any other evil with which they have to contend. It would be a good topic for discussion at the next meeting of the State Pharmaceutical Association, and is a subject well worthy of the consideration of the Committee on Legislation of that august body. If Secretary Klie would announce that this question will be brought up for consideration at the Excelsior Springs meeting next June, there would be representatives from every section of the State, which would far exceed all previous meetings of the Association.

One of the best known travelling men visiting the drug trade of Illinois has been E. W. RIDGEWAY, of Meyer Brothers Drug Co. Mr. Ridgeway was in the employ of this firm for a great many years, but failing health caused him to resign several months ago, and he died at his home in Mt. Vernon, Ill., last month.

W. A. STEWART, the present proprietor of Primm's Pharmacy, 14th and Washington avenue, is contemplating extensive changes in his place of business. The store has a trade which will justify such expenditures.

As a rule the drug clerks work westward in their efforts to secure suitable positions, but FRANK BYNE, of Kansas City, stems the tide and comes to St. Louis for a situation. He has had a number of years of experience in compounding prescriptions.

CHAS. W. NAU, Ph.G., is the very obliging and competent prescription clerk for G. H. Chas. Klie, 5100 N. Broadway. Mr. Klie always manages to employ first-class assistants.

St. Genevieve has furnished a number of druggists for St. Louis. Among them is DR. J. C. FALK, JOS. GEILER and JOHN BOGY, PETER PETERSON, and another young man from that town who is learning the drug business with Otto Clause.

The Alumni Association of the St. Louis College of Pharmacy held an executive board meeting August 4th, and elected a number of new members. The Association will hold a series of lectures during the winter months.

The new prospectus of the St. Louis College of Pharmacy is out, and it is a very handsome publication. For a copy address the Dean of the Faculty, J. M. GOOD, 2348 Olive street, St. Louis.

Katzenjammer.—Resorcin is said to act admirably in cases of nausea and depression following a carouse. It is given in the dose of from 5 to 10 grains in plenty of water flavored with syrup of orange peel, and may be repeated once or twice at intervals of half an hour. A single dose of 10 grains is, however, said to be usually sufficient.

For Tender Feet.—Tramps, either amateur or professional, who suffer from sore feet after an unusually long walk, will experience great relief from soaking the feet once or twice a week in a half-pailful of hot water to which a piece of nitrate of potassium the size of a small walnut has been added.

Benzin for Boils.—Dr. F. W. Langdon uses benzin as an abortive agent in furunculosis, employing it in the following manner (*Lancet-Clinic*): At the first appearance of the little hard, painful papule, saturate a pledget of absorbent cotton with the remedy, and press it firmly, but not forcibly, over the swelling for about half a minute. Repeat this every hour or two for the first day; after that, two or three times a day, as the swelling and pain subside.

The Largest Fig Orchard in the World will soon be planted in Pomona Valley, Cal. Over 700 acres will be planted, or 73,000 trees. The projectors believe they can produce figs equal to the best Smyrna varieties. The trees will be imported from Syria.